

# **SDMS US EPA REGION V -1**

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DOCUMENTS.**

145429 7/11/88



Westinghouse  
Electric Corporation

Engineering and Instrumentation  
Services Division

2145 Welsch Industrial Court  
St Louis Missouri 63146

July 11, 1988

Loren Gregory  
Cerro Copper Corp.  
P.O. Box 681  
E. St. Louis, IL 62202

Subject: Overtime Charges for Transformer Replacement

Reference: Cerro Copper P.O. No. 79106/Ⓢ No. STEW468

Dear Loren:

As per our phone conversation, overtime charges will be submitted estimated at approximate \$4,000 for work performed on Saturday (7/9) and Sunday (7/10) covering subject purchase order. The bus layout work and testing are also included in this charge.

We appreciate the opportunity to be of service to Cerro Copper and we hope Westinghouse can further assist you on any future projects.

Sincerely,

David L. Azbill  
Ⓢ Service Representative

/smb

C02439

TRANSFORMER CONSULTANTS  
A DIVISION OF S.D. MYERS INC.



CUSTOMER NAME: \_\_\_\_\_ CITY: \_\_\_\_\_  
SUB NAME: \_\_\_\_\_ UNIT #: \_\_\_\_\_ OTHER: \_\_\_\_\_

NAMEPLATE DATA

MFG: \_\_\_\_\_ EQUIP TYPE: \_\_\_\_\_  
DATE MFG: \_\_\_\_\_ TRANS CLASS: \_\_\_\_\_  
S/N: \_\_\_\_\_ IMPEDANCE: \_\_\_\_\_  
KVA: \_\_\_\_\_ PHASE/CYCLE: \_\_\_\_\_  
PRI: \_\_\_\_\_ LIQUID TYPE: \_\_\_\_\_  
SEC: \_\_\_\_\_ GAL LIQUID: \_\_\_\_\_

ADDITIONAL EQUIPMENT

RADIATORS \_\_\_\_\_ CONSERVATORS \_\_\_\_\_  
FANS \_\_\_\_\_ LTC COMP \_\_\_\_\_  
H-2 COOLED \_\_\_\_\_ BUSHING LOC \_\_\_\_\_  
OIL PUMPS \_\_\_\_\_ ROSE LENGTH \_\_\_\_\_  
TOP FPV \_\_\_\_\_ DE-ENERGIZED \_\_\_\_\_  
BOTTOM FPV \_\_\_\_\_ POWER V/A \_\_\_\_\_  
OTHER ACCESS \_\_\_\_\_

VISUAL INSPECTION

PAINT CONDITION \_\_\_\_\_ LEAKS \_\_\_\_\_

FIELD SERVICE

LIQUID SCREEN TEST DATA

DATE	SERVICE	LEVEL	TEMP	P/V	ACID	IFT	DIEL	COLOR	SP. GR.	VISUAL	SEDIMENT
12/30/79					.950 AC	34.3 AC	33 AC	3.30 AC	0.890 AC	CLEAR AC	NONE
9/00/80					.930 AC	34.4 AC	43 AC	3.00 AC	0.880 AC	CLEAR AC	NONE
9/00/81					.950 AC	36.4 AC	50 AC	2.40 AC	0.890 AC	CLEAR AC	NONE
6/00/82					.950 AC	37.5 AC	50 AC	2.30 AC	0.880 AC	CLEAR AC	NONE
4/27/83	LOW		40 C		.938 AC	35.3 AC	43 AC	3.10 AC	0.890 AC	CLEAR AC	NONE
5/14/84	LOW		20 C		.940 AC	34.1 AC	40 AC	1.50 AC	0.880 AC	CLEAR AC	NONE
7/16/85	LOW		40 C		.950 AC	33.0 AC	40 AC	3.50 AC	0.880 AC	CLEAR AC	NONE
7/07/86	NORMAL		47 C		.940 AC	32.1 AC	33 AC	3.70 AC	0.890 AC	CLEAR AC	NONE
5/27/87	NORMAL		43 C		.940 AC	33.0 AC	35 AC	1.00 AC	0.890 AC	FLAT UN	NONE
9/08/97					.940 AC	31.0 AC	25 AC	2.30 AC	0.870 AC	CLEAR AC	NONE

COMMENTS: N/A AND/OR IFT TEST INDICATES THE PRESENCE OF OXIDATION BY-PRODUCTS

GAS-IN-OIL ANALYSIS / GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	SERVICE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUSTIBLE	TOTAL GAS

Page No. 1  
04/14/88

88 09 -- TUBE MILL TRANSFORMER REPLACEMENT

DATE	VENDOR	P.O. NUMBER	P.O. AMOUNT	CIP AMOUNT	EXPENSE AMOUNT	CAPITAL AMOUNT	TOTAL AMOUNT	DESCRIPTION
02/29/88	WESTINGHOUSE ELECTRIC CORP.	79106	42035	0	0	0	0	3-PHASE 2500 KVA TRANSFORMER
*** Total ***			42035	0	0	0	0	

3762778

C02441

**TRANSFORMER CONSULTANTS**  
A DIVISION OF S.D. MYERS INC.

8 0 500 4730 4100 01 14311



CUST CERRO COPPER PRODUCTS CITY E ST LOUIS IL  
SUB NAME EXTENSION BAY UNIT # 1034 OTHER

ID # 07520000 DATE PRINTED 6/11/87  
LOCATION OUTDOOR/GROUNDE

**NAMEPLATE DATA**

MFG GE EQUIP TYPE TRANSFORMER  
DATE MFG TRANS CLASS  
S/N 3762778 IMPEDENCE 4.991  
KVA 833 PHASE/CYCLE 3/60  
PRI 13,800 LIQUID TYPE OIL  
SEC 460 GAL LIQUID 600

**ADDITIONAL EQUIPMENT**

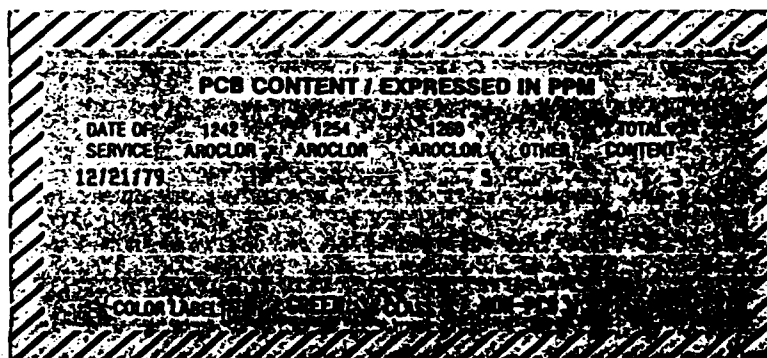
RADIATORS YES CONSERVATOR NC  
FANS NO TAP CHANGER NC  
H2O COOLED NO BUSHING LOC TOP  
OIL PUMPS NC RECLAIMER  
TOP FPV 1.00 IN POWER V/A 400/30  
BOTTOM FPV 1.00 IN OTHER ACCESS

**VISUAL INSPECTION**

PAINT CONDITION BAD LEAKS YES/ALL OVER

**FIELD SERVICE**

10/75 RE-REFINE 7/83 RE-REFINE



**LIQUID SCREEN TEST DATA**

DATE	SERVICE	LEVEL	TEMP	P/V	ACID	IFT	DIEL	COLOR	SP. GR.	VISUAL	SEDIMENT
12/00/79					.040 AC	35.5 AC	40 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
9/00/80					.040 AC	35.0 AC	41 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
9/00/81					.040 AC	33.1 AC	50 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
6/00/82					.060 QU	35.8 AC	47 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
4/27/83	LOW	36 C			.060 QU	31.9 QU	43 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
7/14/83	NORMAL				.030 AC	44.8 AC	45 AC	2.00 AC	0.890 AC	CLEAR AC	NONE AC
5/14/84	LOW	20 C			.040 AC	38.8 AC	44 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
7/16/85	NORMAL	40 C			.040 AC	36.0 AC	44 AC	2.00 AC	0.890 AC	CLEAR AC	NONE AC
7/07/86	NORMAL	43 C			.040 AC	36.1 AC	35 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/27/87	NORMAL	35 C			.040 AC	34.1 AC	40 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC

COMMENTS TRANSFORMER OIL TEST DATA ACCEPTABLE, HOWEVER STUDIES INDICATE OXIDATION BY-PRODUCTS TRAPPED IN INSULATION.

**GAS-IN-OIL ANALYSIS / GAS CHROMATOGRAPHY EXPRESSED IN PPM**

DATE	SERVICE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUSTIBLE	TOTAL GAS
2/14/79		ND	19429	58556	10	13	525	4	33	ND	60	78570
12/20/79		ND	25076	56113	1	11	512	ND	1	ND	13	81714
10/05/80		ND	27063	65468	ND	4	537	ND	5	ND	9	93077
9/09/81		ND	25531	53778	ND	3	438	ND	ND	ND	3	79750
6/07/82		ND	23459	60810	ND	4	457	ND	ND	ND	4	84730
5/02/83		ND	25771	60815	ND	12	424	ND	TRACE	ND	12	87082
5/14/84		ND	26543	58293	ND	ND	414	ND	ND	ND	ND	85250
7/24/85		ND	27450	61572	1	13	532	TRACE	TRACE	ND	16	89570
7/07/86		ND	24135	50623	TRACE	TRACE	505	TRACE	TRACE	ND	TRACE	75263
5/27/87		ND	26984	57452	ND	9	411	ND	1	ND	10	84857

RECOMMENDATION \* COMMENTS

RETEST 1 YEAR 1 6-MTH ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME

C02442

# Westinghouse Electric Corporation

2060 CRAIGSHIRE RD  
ST. LOUIS, MO 63146

3/14/88

1988

SEND APPROVALS OR INQUIRIES TO:

TRANSMITTAL DATE

L. O. NO. SAT 4999	PROD. CODE	ATTN. ORDER SERVICE REP. B.L. PENROSE	CUST. ORDER NO. 79106	S. O. NO. & DATE-C/N DATE STEW46802-RV 3/2/88
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CUSTOMER CERRO COPPER PRODUCTS CO. SAUGET WORKS E. ST. LOUIS, IL 62202	ULTIMATE USER AND/OR MAINTENANCE SAME
---	--

<input type="checkbox"/> <b>FOR APPROVAL, TO MAINTAIN SHIPPING SCHEDULE, APPROVED DWGS, MUST BE RECEIVED BY WESTINGHOUSE ON _____</b> DRAWINGS ARE IN COMPLIANCE WITH YOUR SPECIFIED REQUIREMENTS. DRAWINGS "APPROVED" OR "APPROVED WITH MODIFICATIONS" AUTHORIZE WESTINGHOUSE TO PROCEED WITH THE MANUFACTURE. MODIFICATIONS NOT IN THE CONTRACT OR MODIFICATIONS MADE DURING OR AFTER DRAWING APPROVAL MAY RESULT IN A PRICE CHANGE AND/OR SHIPMENT DELAY.	<input checked="" type="checkbox"/> <b>FOR CONSTRUCTION OR INSTALLATION</b> THE EQUIPMENT SHOWN ON THESE DRAWINGS(S) HAS BEEN RELEASED FOR MANUFACTURE. ANY MODIFICATION MAY RESULT IN PRICE CHANGE OR SHIPMENT DELAY.	<input type="checkbox"/> RPD APPROVAL BY:
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DRAWINGS				INSTR. BOOKS		RPD		TEST REPORTS	SPECIFIC CUSTOMER INSTRUCTIONS ARE DETAILED IN NOTES * TYPE OF REPRO _____ MAIL DWGS. TO _____
APPROVAL	CONSTRUCTION OR INSTALL.			ENCL.	UN-ENCL.	STD.	SEC. PRICED		
STD./ SKETCH	PAPER REPRO	PAPER	* REPRO						
		5			5	5			CERRO COPPER PRODUCTS CO. PO BOX 681 E. ST. LOUIS, IL 62202 ATTN: LOREN GREGORY
		2			1	1			ST. LOUIS EISD - B. PENROSE

THIS LINE FOR DIVISION USE ONLY										South Boston-Y. Crouch
T/S	T/S	1 T/S	T/S	T/S	T/S	T/S	T/S	T/S	T/S	

ITEM	QUANTITY	DESCRIPTION
1	1	2500KVA TRANSFORMER (Substation)

DWG. NO.	SUB	DRAWING TITLE	DWG. NO.	SUB	DRAWING TITLE
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C02443

# Westinghouse Maintenance Service

WESTINGHOUSE ELECTRIC CORP.  
TRANSFORMER DIVISION  
SOUTH BOSTON, VIRGINIA

## Renewal Parts Data

This Renewal Parts Data will provide you with the proper identification of those Renewal Parts which you may require in the maintenance of this Westinghouse equipment.

It is desirable to forecast as accurately as possible your requirements for Renewal Parts to assure that the necessary parts and materials will be available when needed to keep your equipment in efficient and continuous operating condition.

The recommendations for stock are the minimum quantities that should be available for servicing this equipment. We feel that you are in a better position than we to decide how much you wish to invest in Renewal Parts. The importance of minimizing shut-down time due to possible break-downs in operation, together with the distance from source of supply and transportation facilities, should be considered by you when ordering renewal parts.

*Maintain the maximum operating characteristics of your apparatus and its dependability by using genuine Westinghouse Renewal Parts*

The services of Westinghouse engineers and Apparatus Repair Shops are available to help with your maintenance problems.

## Procedure for Identifying Renewal Parts

1. Obtain the complete nameplate reading of the apparatus for which the part is desired.
2. Turn to the indicated Renewal Parts Data sheet where the desired part is described and identified.
3. If any part required is not identified in your Renewal Parts Data Sheets, give the complete nameplate reading of the apparatus and a description of the part needed.

## Ordering Instructions

Give the style or other identifying number and description of the part. Give the complete nameplate reading of the apparatus.

For Maintenance Service contact your nearest Westinghouse Sales Office, to whom you should send all orders and correspondence.

# WESTINGHOUSE ELECTRIC CORPORATION RENEWAL PARTS DATA

CUSTOMER CERRO COPPER PRODUCTS

CUSTOMER ORDER 79106

GENERAL ORDER STEW40602

SHOP ORDER SAT4999

APPARATUS: 1- 2500KVA SUBSTATION  
TRANSFORMER

THE FOLLOWING PARTS ARE MOST SUBJECT TO WEAR IN ORDINARY OPERATION:

NAME OF THE PART	IDENTIFICATION NUMBER	NUMBER PER UNIT
HIGH VOLTAGE BUSHING	234C115G05	3
HIGH VOLTAGE BUSHING GASKET	785C260H17	3
LOW VOLTAGE BUSHING	3722C70G01	3
LOW VOLTAGE BUSHING GASKET	785C260H15	3
XO BUSHING	3722C70G01	1
XO BUSHING GASKET	785C260H15	1
FLUID GAGE WITHOUT ALARMS R = 7.50	6703D90M01	1
FLUID GAGE GASKET	785C260H11	1
THERMOMETER WITHOUT ALARMS	3718C10G01	1
SEALED AIR RELIEF DEVICE WITH AIR TEST	3718C58G03	1
MANHOLE GASKET	1050543H30	1
TAP CHANGER SHAFT PACKING	55D2501H01	1
GASKET CEMENT	53351GH00Y	1
RETOUCH PAINT (INDOOR) ANSI C1	5222CLM00Y	1

NOTE: PARTS INDENTED ARE INCLUDED IN THE PART UNDER WHICH THEY ARE INDENTED  
ORDER PART BY NAME AND IDENTIFICATION NUMBER - GIVE COMPLETE DESCRIPTION.



# WESTINGHOUSE ELECTRIC CORPORATION RENEWAL PARTS DATA

CUSTOMER CERRO COPPER PRODUCTS

CUSTOMER ORDER 79106

GENERAL ORDER STEW40602

SHOP ORDER SAT4999

APPARATUS: 1- 2500KVA SUBSTATION  
TRANSFORMER

THE FOLLOWING PARTS ARE MOST SUBJECT TO WEAR IN ORDINARY OPERATION:

NAME OF PART	IDENTIFICATION NUMBER	NUMBER PER UNIT
HIGH VOLTAGE BUSHING	234C115G05	3
HIGH VOLTAGE BUSHING GASKET	785C260H17	3
LOW VOLTAGE BUSHING	3722C76G01	3
LOW VOLTAGE BUSHING GASKET	785C260H15	3
XO BUSHING	3722C76G01	1
XO BUSHING GASKET	785C260H15	1
FLUID GAGE WITHOUT ALARMS R = 7.35	6763D96M01	1
FLUID GAGE GASKET	785C260H11	1
THERMOMETER WITHOUT ALARMS	3716C1UG01	1
SEALED AIR RELIEF DEVICE WITH AIR TEST	3718C58G03	1
HANDHOLE GASKET	1056543H30	1
TAP CHANGER SHAFT PACKING	5502501H01	1
GASKET CEMENT	53351GH0CY	1
RETUCH PAINT (INDOOR) ANSI 61	5222CLM00Y	1

NOTE: PARTS INDENTED ARE INCLUDED IN THE PART UNDER WHICH THEY ARE INDENTED  
ORDER PART BY NAME AND IDENTIFICATION NUMBER - GIVE COMPLETE DESCRIPTION.

# WESTINGHOUSE ELECTRIC CORPORATION RENEWAL PARTS DATA

CUSTOMER CERRO COPPER PRODUCTS  
 CUSTOMER ORDER 79106  
 GENERAL ORDER STEW40602  
 SHOP ORDER SAT4999  
 APPARATUS: 1- 2500KVA SUBSTATION  
 TRANSFORMER

THE FOLLOWING PARTS ARE MOST SUBJECT TO WEAR IN ORDINARY OPERATION:

NAME OF THE PART-----	IDENTIFICATION NUMBER-----	NUMBER PER UNIT-----
HIGH VOLTAGE BUSHING	234C115G05	3
HIGH VOLTAGE BUSHING GASKET	785C260H17	3
LOW VOLTAGE BUSHING	3722C76G01	3
LOW VOLTAGE BUSHING GASKET	785C260H15	3
AC BUSHING	3722C76G01	1
AC BUSHING GASKET	785C260H15	1
FLUID GAGE WITHOUT ALARMS R = 7.35	6763D96M01	1
FLUID GAGE GASKET	785C260H11	1
THERMOMETER WITHOUT ALARMS	3718C10G01	1
SEALED AIR RELIEF DEVICE WITH AIR TEST	3718C58G03	1
MANHOLE GASKET	1050543H30	1
TAP CHANGER SHAFT PACKING	5602501H01	1
GASKET CEMENT	33351GH0CY	1
RETOUCH PAINT (INDOOR) ANSI 61	3222CLM00Y	1

NOTE: PARTS INDENTED ARE INCLUDED IN THE PART UNDER WHICH THEY ARE INDENTED  
 ORDER PART BY NAME AND IDENTIFICATION NUMBER - GIVE COMPLETE DESCRIPTION.



Westinghouse Electric Corporation  
Engineering and Instrumentation  
Services Division  
875 Greentree Road, Bldg. No. 8  
Pittsburgh, Pennsylvania 15220

Selling Policy  
49-000A

Page 1

February 1, 1986  
Supersedes SP 49-000A Pages 1-4 dated  
June 15, 1985  
Mailed to: E, D, C/49-000

Field Engineering Service

## PCB Service

The following terms and conditions shall apply to the servicing, processing or repairing of Polychlorinated Biphenyl ("PCB") contaminated electrical equipment, including the handling or disposing by Westinghouse of PCBs, PCB solid material and/or equipment or materials containing or contaminated with PCBs ("Waste Product"), more particularly described in the attached Westinghouse proposal \_\_\_\_\_ dated \_\_\_\_\_ ("Proposal").

The work to be performed by Westinghouse hereunder shall be collectively referred to as the "Project."

### General Terms and Conditions

#### 1. Price

Westinghouse shall perform the scope of work for the Project as set forth above, in accordance with the terms and conditions set forth herein, and the price Purchaser agrees to pay to Westinghouse for such work shall be that as stated in the Proposal.

#### 2. Quotations

The Proposal and any quotation therein shall expire thirty (30) days from the date of submission unless otherwise extended in writing by Westinghouse.

#### 3. Prices

Prices are net to all purchasers.

#### 4. Taxes

The price does not include any federal, state, or local property, license, privilege, sales, use, excise, gross receipts, value added or other like taxes which may now or hereafter be applicable to, measured by, or imposed upon, or with respect to the Project, any property or material required to perform the Project, its sale, its value, or its use, or any services performed in connection therewith. Such taxes are for the account of the Purchaser and the Purchaser agrees to pay or reimburse any such taxes which Westinghouse or its contractors or suppliers are required to pay.

#### 5. Terms of Payment

Payment is due upon receipt of invoice.

#### 6. Delayed Payments

If payments are not made in accordance with these terms, a service charge will, without prejudice to the right of Westinghouse to immediate payment, be added to the account of the Purchaser in an amount equal to the lower of 1½% per month or fraction thereof or the highest legal rate on the unpaid balance.

#### 7. Payments

Should the Purchaser be adjudged bankrupt or insolvent in any legal proceeding, Westinghouse shall have the right, at its election and throughout the period allowed in such proceeding for filing claims against the Purchaser's estate, to cancel the order and to recover its proper cancellation charges from the Purchaser's estate.

#### 8. Shipping and Completion Dates

Quoted shipping and completion dates are based on prompt receipt of all necessary information and approvals from the Purchaser and access as required by Westinghouse and its contractors or subcontractors (if any) to the site and to the equipment which is the subject of the Proposal. Unless Purchaser stipulates in writing that an earlier shipment or completion is not permissible, Westinghouse reserves the right to ship or complete prior to any dates set forth herein.

#### 9. Force Majeure

Westinghouse shall not be liable for failure to perform or for delay in performance due to fire, flood, strike or other labor difficulty, act of God, act of any governmental authority or of the Purchaser, riot, wrecks or delay in transportation, inability to obtain necessary materials from usual sources, lack of access to the site or to the equipment which is the subject of the Proposal, interruption of electrical service to Westinghouse-supplied equipment, loss of license, permit or approval required by any independent disposal facility to permit storage, treatment, processing or disposal of the Waste Product, or due to any cause beyond its reasonable control.

Except as may otherwise be set forth herein, in the event of delay in performance due to any such cause, the date of delivery or time for completion will be extended by a period of time reasonably necessary to

overcome the effect of such delay. Any additional cost or expense accruing or arising from such event of Force Majeure shall be solely for the account of the Purchaser.

#### 10. Warranty

Westinghouse warrants to the extent to which any of the same may be applicable that (a) any replacement or other parts furnished by it or any work done by it on the Purchaser's equipment or both shall be free of defects in workmanship and materials, (b) any specialized tools, equipment and instruments for the use of which a charge is made to the Purchaser shall be adequate for the work to be performed and (c) the engineering services performed by it will be competent and any recommendations of its representatives shall reflect their professional knowledge or judgment.

Westinghouse shall, correct any failure to conform to any of the applicable foregoing warranties of which it is notified in writing prior to one (1) year after completion of the Project, or shipment of the part, requiring correction under this warranty. Such correction may, in the case of item (a) above and at the election of Westinghouse shall be limited to the repair or replacement F.O.B. Westinghouse plant, of the defective part or parts furnished by it. In the case of any other breach of the foregoing warranty, Westinghouse shall furnish engineering services or specialized tools, equipment and instruments, to the same extent as on the original work. It is understood and agreed that, unless otherwise agreed to in writing by Westinghouse, Westinghouse assumes no responsibility with respect to the suitability of the Purchaser's equipment or with respect to any latent defects in the same. In no event shall Westinghouse be responsible for providing working access to the defect, including the removal, disassembly, replacement or reinstallation of any equipment, materials or structures to the extent necessary to permit Westinghouse to perform its warranty obligations, or transportation costs to and from the Westinghouse factory or repair facility. Westinghouse will not be responsible for damage to equipment components or parts resulting from improper maintenance or operation or from their deteriorated condition. The condition of any tests shall be mutually agreed upon and Westinghouse shall be notified of, and may be present at all tests that may be made.

C02448



The above warranties do not apply to products which have a life under normal use, inherently shorter than the one-year period indicated above. Westinghouse, on products not manufactured by Westinghouse are warranted only to the extent the supplier agrees to extend its warranty to Purchaser.

Westinghouse warrants that any engineering studies performed by it will conform to professional standards. Any portion of the study which does not so conform shall be corrected by Westinghouse upon notification in writing by the Purchaser within six months after completion of the study.

New and/or replacement transformers shall be sold pursuant to Westinghouse Selling Policy 47-000, copy of which shall be provided to Purchaser by Westinghouse with the Proposal.

**THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE), EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.**

#### 11. Liability

Westinghouse, its contractors and suppliers of any tier, shall not be liable in contract, for loss of profits or revenue, loss of use of equipment or power system, cost of capital, cost of purchased or replacement power or temporary equipment (including additional expenses incurred in using existing facilities), claims of customers of the Purchaser, or for any special, indirect, incidental, or consequential damages whether based in contract, in tort, including negligence or strict liability.

#### 12. Patent Infringement

Westinghouse shall, at its own expense, defend or at its option settle any claim, suit or proceeding brought against the Purchaser, and/or its vendees, mediate and immediate, so far as based on an allegation that any goods, material, equipment, device or article (hereinafter referred to as "Product") or any part thereof furnished hereunder constitutes a direct or a contributory infringement of any claim of any patent of the United States. This obligation shall be effective only if Purchaser shall have made all payments then due hereunder and if Westinghouse is notified promptly in writing and given authority, information and assistance for the defense of said claim, suit or proceeding. Westinghouse shall pay all damages and costs awarded in such suit or proceedings so defended. In case the products or any part thereof furnished hereunder becomes the subject of any claim,

suit or proceeding for infringement of any United States patent, or in the event of an adjudication that such product or part infringes any United States patent, or if the use or sale of such product or part is enjoined, Westinghouse shall, at its option and its own expense, either:

(a) procure for the Purchaser the right to continue using said product or part thereof; or

(b) replace it with a non-infringing product; or

(c) modify it so it becomes non-infringing; or

(d) as a last resort, remove it and refund the purchase price and the transportation and installation costs thereof. The foregoing indemnity does not apply to the following:

1. Patent processes performed by the product, or another product produced thereby.

2. Products supplied according to a design other than that of Westinghouse and which is required by the Purchaser.

3. Combination of the product with another product not furnished hereunder unless Westinghouse is a contributory infringer.

4. Any settlements of a suit or proceeding made without Westinghouse's written consent.

The foregoing states the entire liability of Westinghouse with respect to patent infringement by said product or any part thereof.

If a suit or proceeding is brought against Westinghouse solely on account of activities enumerated in paragraph 1, 2 or 3 above, the Purchaser agrees to indemnify Westinghouse in the manner and to the extent Westinghouse indemnified Purchaser, in the first paragraph of this provision insofar as the terms thereof are appropriate.

#### 13. Termination

Any order or contract may be terminated by the Purchaser only after written notice to Westinghouse and payment of reasonable and proper termination charges.

#### 14. Purchaser's Cooperation

Purchaser further agrees to cooperate fully with Westinghouse in performance of the Project and to assist Westinghouse in its compliance with all applicable laws, rules and regulations. Purchaser acknowledges that its strict compliance with such laws, rules and regulations is essential.

If the scope of work hereunder does not include disposing by Westinghouse of any Waste Product above, then Purchaser shall retain sole responsibility and liability for storing, handling, processing and disposing of any and all Waste Product at the site prior to commencement of the work hereunder or generated by performance of the work hereunder.

#### 15. Additional Work

Any additional work performed by Westinghouse for Purchaser, beyond the scope of the Proposal, shall be performed in accordance with these General Terms and Conditions to the extent applicable, and Purchaser shall pay Westinghouse for same at Westinghouse's then current rates for such services, or as may be otherwise negotiated by the parties.

#### 16. Inspection and Right of Rejection

Westinghouse may reject Waste Product it has reasonably determined to be in non-compliance with any applicable statute, ordinances, orders, rules or regulations. Westinghouse shall give Purchaser notice of the rejection and reasons for such rejection. Purchaser shall make reasonable efforts to bring the Waste Product into compliance within a reasonable period of time. If Purchaser fails to bring the Waste Product into compliance, Purchaser will be deemed to have title to the Waste Product and Westinghouse shall be relieved of any further responsibility to Purchaser with respect to same.

#### 17. Purchaser Warranties

The Purchaser warrants and represents to Westinghouse that:

(a) Purchaser will comply with and fulfill its obligations as set forth herein; and,

b) Purchaser has sole title, or the full right to transfer title, to Waste Product which is tendered.

#### 18. Governmental Prohibition

In the event any federal, state or local governmental regulation or act prohibits Westinghouse from completing the Project or servicing and/or repairing, pursuant to the warranty contained herein, Purchaser's PCB or PCB-contaminated electrical equipment, Westinghouse's sole obligation, and Purchaser's exclusive remedy, shall be limited to the refund of the portion of the Price reasonably allocated to the uncompleted portion of the Project.

#### 19. Purchaser's Notification

Purchaser acknowledges the importance of responding promptly to any PCB related problem or condition at the site. Accordingly, Purchaser hereby agrees to notify Westinghouse within forty-eight (48) hours after discovery, or the time when such reasonably should be discovered, of any PCB-related problem or condition created solely by Westinghouse at Purchaser's site.

#### 20. Title and Risk of Loss

Westinghouse shall receive and accept title and risk of loss to the Waste Product (in the event disposal of same is part of the Project) upon placement of the contaminated electrical equipment on the vehicles of Westinghouse or its subcontractors.

**21. Indemnification**

Westinghouse shall indemnify and save Purchaser (including its employees) harmless from and against any expense, loss or liability caused by or resulting from the failure of Westinghouse (or its Subcontractors) to fully comply with applicable federal, state, or local laws, statutes, regulation or governmental directives which regulate the handling, transportation, storage or disposal of the Waste Product hereunder and from any and all claims, suits and liability for loss of or damage to any tangible property or persons (including death) caused by any negligent or willful act of Westinghouse or its Subcontractors during the handling, collection, transportation or storage of the Waste Product hereunder. Westinghouse and Purchaser shall, in the event of liability arising out of their joint negligence or willful acts, be liable to the other and any damaged third party in proportion to their relative degree of fault.



Westinghouse  
Electric Corporation

2060 Craigshire Road  
Box 28540  
St Louis Missouri 63146

January 14, 1988

Loren Gregory  
Cerro Copper Corp.  
P.O. Box 681  
E. St. Louis, IL 62202

Subject: PCB Transformer Replacement vs. Reclassification  
Ⓜ NSTE 88-005

*17 weeks  
Delivery  
+ 1.2*

Dear Loren:

Westinghouse Electric Corp. is pleased to offer this proposal for the retrofill of 3 PCB contaminated transformers versus the disposal and replacement of those same 3 units.

Westinghouse will provide all labor, materials, transportation and disposal services to complete the work. All fluids will be incinerated at the Westinghouse EPA approved incineration facility and all carcasses (on the replacement option) will be landfilled at an EPA approved site.

- 2nd choice* o Retrofill and reclassification to non-PCB status of existing units and disposal of PCB fluids. *Δ3φ*
- 3 phase* Your cost ..... \$5,183.00
- Bus 2nd* o Replacement of existing single phase transformers, 13.8KV to 480V, 833 KVA each (total of 3 units - approximately 2500 KVA), Mineral Oil filled, Delta-Delta connected. *1300/p*
- 2nd* Your cost ..... \$47,977.00
- 5-7 days* (Includes installation and startup)
- rebus*

This quotation is subject to the Terms and Conditions listed above and on the Selling Policy attached. Notice of objection to any different or additional Terms and Conditions is hereby given.

If you have any questions on the above, please feel free to call me at (314)851-9537. I hope that Westinghouse may be of service to you in the near future.

Yours truly,

*David L. Azbill*

David L. Azbill  
Service Representative

Attachment

*Time Incent  
& Transformer  
material size?*

*214-651 9533*

C02451

# CERRO COPPER PRODUCTS CO.

A member of The Marmon Group of companies

## INTERNAL MEMORANDUM

OTHER ADDRESSEES - FOR INFORMATION

cc: J. Hintz  
L. Gregory ✓

File

HQ-10 SHOW NAME, TITLE AND UNIT OF ADDRESSEE AND ADDRESSOR

TO: P. Tandler

DATE: February 18, 1988

FROM: R. E. Conreux

SUBJECT: Tube Mill Transformer Replacement

Enclosed is an AFE for replacement of the three 45 year old transformers that provide power to the Extrusion Bay and other close-by areas.

Before the 1987 summer shutdown the annual sample showed a dangerous level of water in the oil of one of the units. To avoid a prolonged shutdown, we changed the oil in the transformers in hopes that we could drop the level to a safe range to allow continued operation until a "dry out" could be scheduled or some other solution found. This was successful although the follow-up sample still indicated water contamination from the insulation.

The water levels on this transformer before and after the exchange were:

	<u>Moisture - PPM</u>
July 1987	69.67
September 1987	41.00

Fifty (50) PPM of water is considered critical. The dielectric resistance on both the July and September samples was poor.

In addition, these transformers are "weeping" and showing some external oil. One is border-line to being PCB contaminated having 47 PPM in September 1987 after oil was changed.

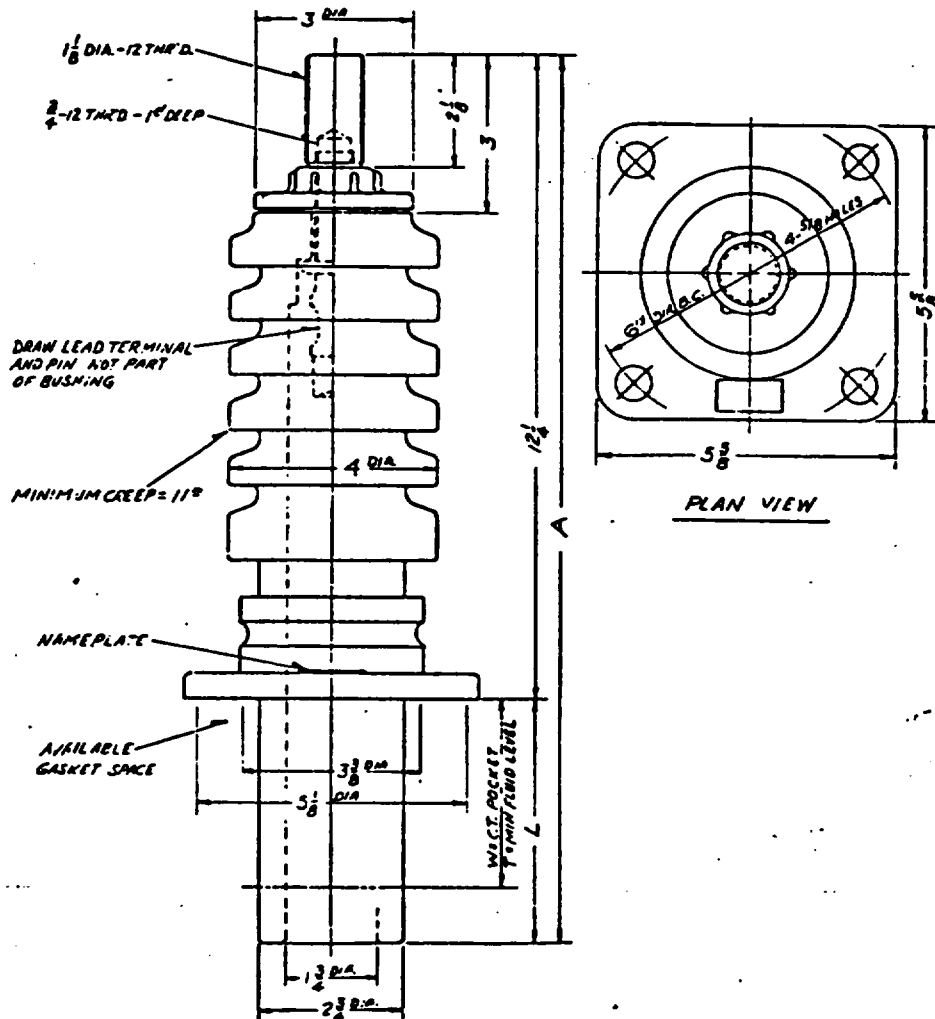
It is the recommendation of both Loren Gregory and Roy Thompson that we replace these old units in order to improve the reliability of the Tube Mill extrusion operation, as there is a potential major problem with the one unit that still contains moisture. The advanced age and physical condition of the transformers and the low dielectric resistance of the one unit makes complete replacement by a single modern 3-phase transformer the prudent course of action.

*will re test next week 2.22.88.*

*R E Conreux*

C02452

**15 KV BUSHING, TYPE RJ**  
**600 AMPERES, 110 BIL, DRAW LEAD CONSTRUCTION**  
**NEMA STANDARD**



LINE	STYLE NO.	COLOR	A	L	W	T	NET WT. POUNDS
1	234C115G91	CHOC	25 3/8	13 1/2	10	11 3/8	
2	234C115G54	GRAY					
3	234C115G82	CHOC	32 1/2	20	16 1/2	13 3/8	
4	234C115G35	GRAY					
5	234C115G03	CHOC	36 3/8	24 1/2	21	15 1/8	
6	234C115G36	GRAY					

EFFECTIVE DECEMBER, 1970

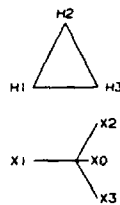
DIMENSION SHEET 48.061.63



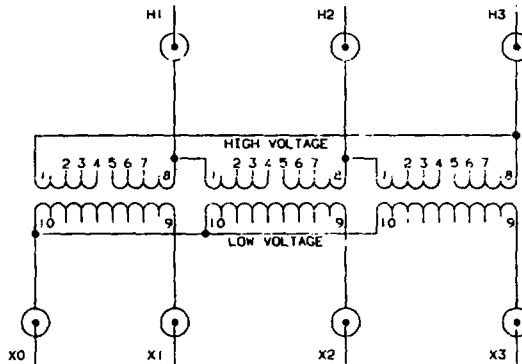
# Westinghouse®



VOLTS		THREE PHASE TYPE RSL OIL INSULATED SUBSTATION TRANSFORMER		FULL LOAD KVA	
HV	13800-			2500	DA
LV	480Y/277				FA
60 HERTZ		CLASS OA		65	*C RISE
		INSULUR INSULATION		GALLONS LIQUID	256 gal
INSTRUCTION BOOK PS-1002		SERIAL SAT4999-		MANUFACTURE DATE	
FULL WAVE IMPULSE TEST LEVEL: H.V. 110 KV..L.V. 45 KV.					
IMPEDANCE 5.64% AT 2500 KVA 13800 TO 480Y VOLTS.					
APPROX. WEIGHT IN LBS. CORE AND COILS		CASE	LIQUID	TOTAL	
MADE IN U.S.A.		WESTINGHOUSE ELECTRIC CORPORATION			
		9780A57			



CONNECTIONS					
WINDING	VOLTS	KVA	TAP CHANGER	CONNECTS	
				POS.	
HIGH VOLTAGE DELTA	14400	100.2	1	4	TO 5
	14100	102.4	2	3	TO 5
	13800	104.6	3	3	TO 6
	13500	106.9	4	2	TO 6
	13200	109.4	5	2	TO 7
LOW VOLTAGE WYE	480	3007.1			



THIS TRANSFORMER WILL CARRY ----- KVA WITHOUT EXCEEDING 65°C AVERAGE

TEMPERATURE RISE WHEN ADEQUATE COOLING EQUIPMENT IS ADDED.

THE TRANSFORMER TANK IS DESIGNED TO WITHSTAND A POSITIVE OR NEGATIVE

PRESSURE OF 08 LBS. PER SQUARE INCH.

THE OPERATING PRESSURE IS LIMITED BY THE SEALED-AIR OIL PRESERVATION SYSTEM, WHEN PROVIDED.

TO --- LBS. PER SQUARE INCH POSITIVE AND --- LBS. PER SQUARE INCH NEGATIVE.

THE 25°C LIQUID LEVEL IS 15.50 INCHES BELOW HIGHEST MANHOLE FLANGE.

LIQUID LEVEL CHANGES .28 INCH FOR EACH 10°C CHANGE IN AVERAGE LIQUID TEMPERATURE.

THE TRANSFORMER MUST NOT BE ENERGIZED FROM ANY VOLTAGE SOURCE WHEN TAP CHANGER IS OPERATED.

SUITABLE FOR OPERATION AT OR BELOW 3300 FEET ALTITUDE AT NAMEPLATE RATING.

PROPORTION 2 1/2:1 .032 STAINLESS STEEL #7904-19 -- SATIN FINISH - ETCHED.

5/16 IN. HOLES FOR 190-32 X 3/16 SCREW.

SIZE 6 1/4 IN. X 10.0 IN. AREA 62.5 SQ. IN. RETURN TO SOUTH BOSTON

DISTANCE BETWEEN CENTERS OF HOLES ON LONG EDGE 9 19/32 IN. ± 1/64 ON SHORT EDGE 5 27/32 IN. ± 1/64

S.O. SAT4999

SUBS FOR CUSTOMER NAMEPLATE  
REVISION  
DATE  
ENG.  
SUB

ENGINEERING REF.  
MIS. 23 & 24  
SHOP INFORMATION

SHOP ORDER

SAT4999

NAMEPLATE

7203A05H01

9780A57

7203A05H01

CUTTER NOTE: N.P. Dwg. IS FOR YOUR INFO. REVIEW THE IMPEDANCE, WEIGHTS, AND GALLONS ARE CALCULATED ON THE BASIS OF THE ACTUAL DATA. THIS Dwg. IS NOT SUBJECT TO ADDITIONAL REVISIONS.

CO2454

STOCK NO. 7203A05

THIS NAMEPLATE WAS PROGRAMMATICALLY CREATED ON A COMPUTER GRAPHICS SYSTEM  
REPRODUCE ON GRADE P -- 115 PAPER SHEET NO. 2701-B SOUTH BOSTON 6-30-65

## Westinghouse Electric Corporation

2060 CRAIGSHIRE RD  
ST. LOUIS, MO 63146

APR 28 1988

SEND APPROVALS OR INQUIRIES TO:

TRANSMITTAL DATE

S. O. NO. SAT 4999	PROD. CODE	ATTN. ORDER SERVICE REP. B.L. PENROSE	CUST. ORDER NO. 79106	G. O. NO. & DATE/C/M DATE STEW46802-RV 3/2/88
-----------------------	------------	--	--------------------------	--

CUSTOMER CERRO COPPER PRODUCTS CO. SAUGET WORKS E. ST. LOUIS, IL 62202	ULTIMATE USER AND/OR MARKINGS SAME
---	---------------------------------------

<input type="checkbox"/> FOR APPROVAL, TO MAINTAIN SHIPPING SCHEDULE, APPROVED DWGS, MUST BE RECEIVED BY WESTINGHOUSE ON _____	<input checked="" type="checkbox"/> FOR CONSTRUCTION OR INSTALLATION	<input type="checkbox"/>
DRAWINGS ARE IN COMPLIANCE WITH YOUR SPECIFIED REQUIREMENTS. DRAWINGS "APPROVED" OR "APPROVED WITH MODIFICATIONS" AUTHORIZE WESTINGHOUSE TO PROCEED WITH THE MANUFACTURE. MODIFICATIONS NOT IN THE CONTRACT OR MODIFICATIONS MADE DURING OR AFTER DRAWING APPROVAL MAY RESULT IN A PRICE CHANGE AND/OR SHIPMENT DELAY.	THE EQUIPMENT SHOWN ON THESE DRAWINGS(S) HAS BEEN RELEASED FOR MANUFACTURE. ANY MODIFICATION MAY RESULT IN PRICE CHANGE OR SHIPMENT DELAY.	RPD APPROVAL BY: <input type="checkbox"/>

DRAWINGS				INSTR. BOOKS		RPD		TEST REPORTS	SPECIFIC CUSTOMER INSTRUCTIONS ARE DETAILED IN NOTES *TYPE OF REPRO _____ MAIL DWGS. TO _____
APPROVAL		CONSTRUCTION OR INSTALL.		BND.	UN-BND.	STD.	REC. PRICED		
STD./ SKETCH	PAPER REPRO	PAPER	* REPRO						
		5			5	5			CERRO COPPER PRODUCTS CO. PO BOX 681 E. ST. LOUIS, IL 62202 ATTN: LOREN GREGORY
		2			1	1			ST. LOUIS EISD - B. PENROSE <i>She</i> <i>schedules</i> <i>Chuck Peters 291 8080 AMECO</i> <i>9th at 8:00</i>
THIS LINE FOR DIVISION USE ONLY									South Boston-Y. Crouch
T/S	T/S	1 T/S	T/S	T/S	T/S	T/S	T/S	T/S	

ITEM	QUANTITY	DESCRIPTION
1	1	2500KVA TRANSFORMER (Substation)

DWG. NO.	SUB	DRAWING TITLE	DWG. NO.	SUB	DRAWING TITLE
2D62557	1	Outline	GE.		
9780A57	1	Nameplate	Replaces	833kVA	
6764D26	22	Detail	3 1 $\phi$ Transformers		
48-061-57H	L7	LV Bushing	Serial #'s 3762778	1034	
48-061-63	L4	HV Bushing	3762779	1033	
			3762780	169	
We provide first for all			each <del>copy</del>		

Co

* THIS TRANSMITTAL IS	<input type="checkbox"/> COMPLETE	With Drawings Noted Above Or On Attached Sheet to be sent by
	<input type="checkbox"/> PARTIAL	

C02455

# ENVIRONMETRICS

10679 Midwest Industrial Blvd.

St. Louis, MO 63132

(314) 427-0550

Cerro Copper

P.O. Box 681

East St. Louis, IL 62202

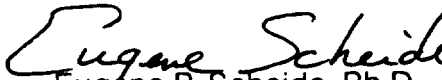
## ANALYSIS RESULTS

PCBs in Oil

<u>Sample No.</u>	<u>Identification</u>	<u>Total ppm</u>	<u>Type</u>
36914	G.E. #1663323 500 KVA 1Ø	66	1242 & 1260

\*All values are  $\pm 10\%$

November 17, 1986

  
Eugene P. Scheide, Ph.D.  
Laboratory Director

C02456

Cerro Copper  
P.O. Box 691  
East St. Louis, IL 62202

PO#67221

1000 KVA X-FORMERS

## ENVIRONMETRICS

10679 Midwest Industrial Blvd.  
St. Louis, MO 63132  
(314) 427-0550


### ANALYSIS RESULTS

PCBs in Oil

<u>Sample No.</u>	<u>Identification</u>	<u>Total ppm</u>	<u>Type</u>
1972259		73	1260
1972260		33	1260
1972983		less than 1	----

\*All values are  $\pm 10\%$

March 12, 1986

  
Eugene P. Scheide, Ph.D.  
Laboratory Director

C02457

A member of The Marmon Group of Companies

## SAUGET WORKS

P.O. BOX 881  
EAST ST. LOUIS, ILL 62202  
618 337-6000

THIS NUMBER MUST APPEAR ON ALL  
INVOICES, LABELS, PACKING LISTS &  
SHIPPING PAPERS

NO. 79106

# PURCHASE ORDER

**TO  
SELLER**

Westinghouse Electric Corp  
3060 Craighurst Road  
Box 28540

St. Louis Mo. 63146

attn: David Anzures

SHIP TO:

**CERRO COPPER PRODUCTS CO.**  
**HIGHWAY #3, ALTON & SOUTHERN TRACKS**  
**SAUGET, ILL 62201**

HFE 88-9

DEPT

MARK SHIPPING PAPERS  
"RECEIVING CLOSES 3 P.M."

Date of Req./Order  
2-29-88

**SNP On**

Reg. No.

**Confirmation Date**

**Refer All Inquiries To**

Term 2

**F.O.B.**

### Shipping Instructions

met

PLEASE ENTER OUR ORDER FOR THE FOLLOWING MATERIAL OR SERVICES SUBJECT TO TERMS PRINTED ON BOTH SIDES OF THIS ORDER

QUANTITY	DESCRIPTION	PRICE	EXTENSION
1	Replacement of existing single phase transformers with one 3-phase unit 2500 KVA 13.8KV to 480 volt, mineral oil filled, copper winding, Delta-Delta connected. Including installation and start up per proposal Dated Feb 5, 1988		
	Confirmation 2-89	AFE	42035
	move / store /	Code A	

### Mach. Description

Ordered by LE May

YOUR PRICES MUST BE EXCLUSIVE OF ALL TAXES. ANY APPLICABLE TAX WHICH YOU ARE REQUIRED TO COLLECT MUST BE SHOWN AS A SEPARATE ITEM ON ALL QUOTATIONS & INVOICES.

MAIL INVOICE IN DUPLICATE TO

P.O. BOX 681

EAST ST. LOUIS, ILL 62202

**CERRO COPPER PRODUCTS CO**

A member of The Marmon Group of companies

VENDOR	PURCHASING	ACCOUNTING	RECEIVING	REQUISITIONOR	EXTRA	EXTRA
WHITE	GREEN	YELLOW	PINK	BLUE	SALMON	GOLD

**BUYER**

C02459

SUBS FOR CUSTOMER NAMEPLATE

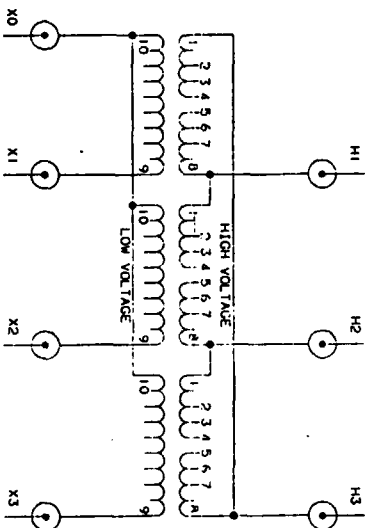
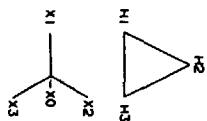
ENG.	DATE	REVISION

ENG.

DATE \_\_\_\_\_

REVISION

ENGINEERING RESEARCH  
MIS. 23 & 24  
SHOP INFORMATION



SHOP ORDER  
SAT4999  
NAME PLATE  
7203A06

7203A05HC1

0780A5

203A05H01

LIQUID LEVEL CHANGES 0.28 INCH FOR EACH 10°C CHANGE IN AVERAGE LIQUID TEMPERATURE.  
THE TRANSFORMER MUST NOT BE ENERGIZED FROM ANY VOLTAGE SOURCE WHEN TAP CHANGER IS OPERATED  
SUITABLE FOR OPERATION AT OR BELOW 3300 FEET ALTITUDE AT NAMEPLATE RATING.

PROPORTION 2 1/2 IN. .020 STAINLESS STEEL 17904-19 -- SATIN FINISH - ETCHED.  
6/16 IN HOLES FOR 190-22 & 2/16 BOLTS.  
SIZE 6 1/4 IN. X 10.0 IN. AREA 62.5 SQ. IN. WEIGHT 10.0 LBS. 10.0 IN. SECTION.  
DISTANCE BETWEEN CENTERS OF HOLES ON LONG EDGE 9 1/8 IN. 1/64 ON SHORT EDGE & 27/32 IN. & 1/64

THIS NAMEPLATE WAS PROGRAMMATICALLY CREATED ON A COMPUTER GRAPHICS SYSTEM  
REPRODUCE ON GRADE P -- 115 PAPER SHEET NO. 2701-B SOUTH BOSTON 6-30-65

CUSTOMER NOTE: N.P. Dwg. IS FOR YOUR INFO. REVIEW THE IMPOUNDING, WEIGHTS, AND GALLONS ARE LEFT BLANK SINCE Dwg. IS SUBMITTED PRIOR TO MFG. THE ACTUAL TESTED VALUES ARE ENGRAVED ON THE METAL N.P. AT TIME OF SHIPMENT. THIS Dwg. IS NOT SUBSEQUENTLY REVISED TO ADD TESTED VALUES.

SUBS FOR REPLICATE  
 STOCK NO. 7203A03

C02460

# IMPORTANT MESSAGE

TO LG  
 DATE 3-4 TIME 10 AM  
 P.M.

WHILE YOU WERE OUT

M — Dave Agbell —

OF Westinghouse

Area Code & Exchange 314 / 851-9537

TELEPHONED	PLEASE CALL	<input checked="" type="checkbox"/>
CALLED TO SEE YOU	WILL CALL AGAIN	<input type="checkbox"/>
WANTS TO SEE YOU	URGENT	<input type="checkbox"/>
RETURNED YOUR CALL		

Message P.O.

AY

AY

Transmitter

here by 5-15-88

Operator \_\_\_\_\_

NEW

To LG ☐ URGENT

Date 6/30 Time 1:50 ☒ AM ☐ P.M.

**WHILE YOU WERE OUT**

From Bert

Of Waterhouse

Phone 340 991-4843

Telephoned	<input checked="" type="checkbox"/>	Placed call	<input type="checkbox"/>
Came to see you	<input type="checkbox"/>	Wants to see you	<input type="checkbox"/>
Returned your call	<input type="checkbox"/>	Will call again	<input checked="" type="checkbox"/>

Message Doing replace

CPA B transferred. Needs

EPA Signed I. D. ...

Notes Loren said to get

you to call ASAP

There are non-contamin

**copi** 48000

C02462



Westinghouse  
CLAS 0A  
HV 138000

Instruction Book P31002

Serial # SAT 4999-0101  
- m.p. 5.6952

Liquid at  
1920 W. 2500 KV  
13.8KV

Ca To  
480

Man. Date  
5/1985



Westinghouse  
Electric Corporation

2060 Craigshire Road  
Box 28540  
St Louis Missouri 63146

February 8, 1988

Loren Gregory  
Cerro Copper Corp.  
P.O. Box 681  
E. St. Louis, IL 62202

Subject: Transformer Relocation  
Ⓢ NSTE88-017

Dear Loren:

Westinghouse Electric Corporation is pleased to quote to you on the following:

- o Relocation of Westinghouse 1500KVA transformer and attached equipment, 13.8KV/480V, located near Tube Mill North to area approximately 100 feet further east (near same building). Price includes rigging and placement on customer-provided pad, disconnection and reconnection of primary and 6 secondary cables (including junction box, cable, cable tray, misc. hardware, 6 stress cones, 5 men for 4 days and a bucket truck for one week).

Your cost ..... \$24,797.00

This quotation is subject to the Terms and Conditions listed above and on the Selling Policy attached. Notice of objection to any different or additional Terms and Conditions is hereby given.

If you have any questions on the above, please feel free to call me at (314)851-9537. I hope that Westinghouse may be of service to you in the near future.

Sincerely,

David L. Azbill  
Ⓢ Service Representative

Attachment

/smb

Fax  
314-851-9569



placement or reinstallation of any equipment, materials or structures to the extent necessary to permit Westinghouse to perform its warranty obligations, or transportation costs to and from the Westinghouse factory or repair facility, or for damage to equipment components or parts resulting in whole or in part from improper maintenance or operation or from their deteriorated condition. The condition of any tests shall be mutually agreed upon and Westinghouse shall be notified of, and may be present at all tests that may be made.

The above warranties do not apply to products which have a life, under normal use, inherently shorter than the 1 year period indicated above. Westinghouse, on products not manufactured by Westinghouse, limits itself to extending the same warranty it receives from the supplier.

Westinghouse warrants that any engineering studies performed by it will conform to high professional standards. Any portion of the study which does not so conform shall be corrected by Westinghouse upon notification in writing by the purchaser within 6 months after completion of the study.

All warranty work shall be performed in a single shift straight time basis Monday through Friday. In the event that the product requires correction of warranty items on an overtime schedule, the premium portion of such overtime shall be for the purchaser's account.

**The foregoing warranties are exclusive and in lieu of all other warranties whether statutory, express or implied (including all warranties of merchantability and fitness for particular purpose and all warranties arising from course of dealing or usage of trade), except of title and against patent infringement.**

The remedies provided above are the purchaser's sole remedies for any failure of Westinghouse to comply with its obligations. Correction of any nonconformity in the manner and for the period of time provided above shall constitute complete fulfillment of all the liabilities of Westinghouse whether the claims of the purchaser are based in contract, in tort (including negligence) or otherwise with respect to or arising out of the work performed hereunder.

#### **Liability**

Westinghouse, its contractors and suppliers of any tier, shall not be liable in contract, in tort (including negligence) or otherwise for damage or loss of other property or equipment, loss of profits or revenue, loss of use of equipment or power system, cost of capital, cost of purchased or replacement power or temporary equipment (including additional expenses incurred in using existing facilities), claims of customers of the purchaser, or for any special, indirect, incidental, or consequential damages whatsoever.

The remedies of the purchaser set forth herein are exclusive and the liability of Westinghouse with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, installation or technical direction of installation, maintenance or technical direction of maintenance, repair or use of any equipment covered by or furnished under the contract, whether in contract, in tort (including negligence) or otherwise, shall not exceed the price set forth herein for the work.

#### **Patent Infringement**

Subject to the following provisions, Westinghouse shall at its own expense, defend or at its option settle any claim, suit or proceeding brought against the purchaser, and/or its vendees, mediate and immediate, so far as based on an allegation that any goods, material, equipment, device or article (hereinafter referred to as product) or any part thereof furnished hereunder constitutes a direct or a contributory infringement of any claim of any patent of the United States. This obligation shall be effective only if purchaser shall have made all payments then due hereunder and if Westinghouse is notified promptly in writing and given authority, information and assistance for the defense of said claim, suit or proceeding. Westinghouse shall pay all damages and costs awarded in such suit or proceedings so defended. In case the product or any part thereof furnished hereunder becomes the subject of any claim, suit or proceeding for infringement of any United States patent, or in the event of an adjudication that such product or part infringes any United States patent, or if the use or sale of such product or part is enjoined, Westinghouse shall, at its option and its own expense, either:

- (a) procure for the purchaser the right to continue using said product or part thereof; or
- (b) replace it with a non-infringing product; or
- (c) modify it so it becomes non-infringing; or
- (d) as a last resort remove it and refund the purchase price and the transportation and installation costs thereof.

The foregoing indemnity does not apply to the following:

1. Patented processes performed by the product, or another product produced thereby.
2. Products supplied according to a design other than that of Westinghouse and which is required by the purchaser.
3. Combination of the product with another product not furnished hereunder unless Westinghouse is a contributory infringer.
4. Any settlements of a suit or proceeding made without Westinghouse's written consent.

The foregoing states the entire liability of Westinghouse with respect to patent in-

fringement by said product or any part thereof.

If a suit or proceeding is brought against Westinghouse solely on account of activities enumerated in paragraphs 1, 2, or 3 above, the purchaser agrees to indemnify Westinghouse in the manner and to the extent Westinghouse indemnified purchaser in the first paragraph of this provision insofar as the terms thereof are appropriate.

#### **Indemnification**

Westinghouse shall, subject to provision entitled **Liability**, indemnify and save the purchaser harmless for, but only for, claims of third parties for physical damage to property and personal injury, including death, occurring during the performance of the work hereunder on the premises of the purchaser and resulting directly and solely from the negligence of the employees of Westinghouse while engaged in such work except where such damage or injury arises out of or results from a "nuclear incident" (as defined in the Atomic Energy Act of 1954, as amended).

Westinghouse shall, with respect to such work, comply with the provisions of the Applicable Workmen's (Workers') Compensation Act.

#### **Termination**

Any order or contract may be terminated by the purchaser only on written notice to Westinghouse and upon payment of reasonable and proper termination charges.

#### **Minimum Billing**

The minimum billing for any service performed on a single order will be \$55.

#### **Scrap Materials**

All scrap materials become the property of Westinghouse.

#### **Containers**

An extra charge will be made for returnable containers and special shipping devices, but refund will be made if returned in good condition to the factory or other point designated by Westinghouse within 90 days from date of original shipment, charges prepaid.

#### **Nuclear Application**

In the event that the purchaser or third parties use services, product, or any part thereof, in connection with any activity or process involving nuclear fission or fusion or any use or handling of any source, special nuclear or by-product material as those materials are defined in the U. S. Atomic Energy Act of 1954 (as amended), the above items shall be sold pursuant to Selling Policy 60, copy of which will be provided upon request and which are in addition to the terms contained herein. Purchaser shall immediately notify Westinghouse of such nuclear application so that nuclear regulations and insurance provision contained in those terms and conditions can be complied with. Such notification shall be in writing by certified mail to Westinghouse.



Westinghouse Electric Corporation  
Engineering and Instrumentation  
Services Division  
875 Greentree Road, Bldg. No. 8  
Pittsburgh, Pennsylvania 15220

Selling Policy  
**49-000**

Page 1

August 15, 1987  
Supersedes SP 49-000, pages 1 and 2  
dated January 1, 1983  
Mailed to: E, D, C/49-000

Field Engineering Service

## Engineering Service

©Price Reference – PL 49-020  
PL 49-021A  
PL 49-023  
PL 49-026

### Terms and Conditions of Sale

Westinghouse hereby gives notice of its objection to any different or additional terms and conditions except for any such terms and conditions as may be expressly accepted by it in writing.

Unless different or additional terms and conditions are stated or referred to in the proposal, in which event such different or additional terms and conditions shall be exclusive as to the particular subject covered, the terms and conditions stated below apply, and such terms and conditions supersede any prior or contemporaneous agreements or correspondence between the parties.

### Quotations

This Quotation will expire 30 days from its date unless otherwise stated in the quotation or unless extended in writing by Westinghouse.

### Prices

Prices are net to all purchasers.

### Price Policy

Prices quoted are firm for ninety days from the date of order. If shipment of repaired equipment or completion of service extends beyond 90 days from the date of order, the prices will be adjusted to those in effect at the time of such shipment or completion; however, increases will not exceed 1% of the unpaid balance per month from the date of the order.

### Taxes

The price does not include any federal, state, or local property, license, privilege, sales, use, excise, gross receipts, value added, or other like taxes which may now or hereafter be applicable to, measured by, or imposed upon, or with respect to the transaction, the property, its sale, its value, or its use, or any services performed in connection therewith. Such taxes are for the account of the purchaser and the purchaser agrees to pay or reimburse any such taxes which Westinghouse or its contractors or suppliers are required to pay.

### Terms of Payment

Payment is due upon receipt of invoice.

### Delayed Payments

If payments are not made in accordance with these terms, a service charge will, without prejudice to the right of Westinghouse to immediate payment, be added to the account of the purchaser in an amount equal to the lower of 1½% per month or fraction thereof or the highest legal rate on the unpaid balance.

### Payments

Westinghouse shall have the right to require full or partial payment in advance at any time, if, in its opinion, the financial condition of the purchaser does not justify the terms of payment specified.

Should the purchaser be adjudged bankrupt or insolvent in any legal proceeding, Westinghouse shall have the right, at its election and throughout the period allowed in such proceeding for filing claims against the purchaser's estate, to cancel the order and to recover its proper cancellation charges from the purchaser's estate.

If the work is delayed by the purchaser, Westinghouse may require payment for all materials accumulated and work performed under the order.

### Delivery – Risk of Loss

All transportation costs shall be for the account of the purchaser and shall be added to the invoice. The equipment sent to Westinghouse for repair shall be delivered by purchaser F.O.B. Westinghouse plant. Repaired equipment and other equipment or materials furnished by Westinghouse shall be delivered to the purchaser F.O.B. Westinghouse plant. Title to and risk of loss of or damage to any material or equipment furnished by Westinghouse under the contract shall pass to the purchaser F.O.B. Westinghouse plant. Risk of loss or damage to the purchaser's material or equipment shall be with the purchaser at all times.

### Shipping Dates

Shipping and/or completion dates are approximate and are based on prompt receipt of all necessary information and approvals from the purchaser. Unless the purchaser stipulates on their purchase order that an earlier shipment is not permissible, Westinghouse reserves the right to ship prior to the contract shipping date.

### Force Majeure

Westinghouse shall not be liable for failure to perform or for delay in performance due to fire, flood, strike or other labor difficulty, act of God, act of any governmental authority or of the purchaser, riot, embargo, fuel or energy shortage, car shortage, faulty castings or forgings, wrecks or delay in transportation, inability to obtain necessary labor, materials or manufacturing facilities from usual sources, or due to any cause beyond its reasonable control.

In the event of delay in performance due to any such cause, the date of delivery or time for completion will be extended by a period of time reasonably necessary to overcome the effect of such delay.

### Warranty

Westinghouse warrants, to the extent to which any of the same may be applicable, that (a) any replacement or other parts furnished by it or any work done by it on the purchaser's equipment or both shall be free of defects in workmanship and materials, (b) any specialized tools, equipment and instruments for the use of which a charge is made to the purchaser shall be adequate for the work to be performed and (c) the engineering services performed by it will be competent and any recommendations of its representatives shall reflect their best professional knowledge or judgment.

Westinghouse shall, upon prompt written notice from the purchaser, correct any failure to conform to any of the applicable foregoing warranties which may appear within a period of one (1) year after completion of the work, or shipment of the part, requiring correction under this warranty. Such correction may, in the case of item (a) above and at the election of Westinghouse be limited to the repair or replacement F.O.B. Westinghouse plant, of the defective part or parts furnished by it. In the case of any other breach of the foregoing warranty, Westinghouse shall furnish engineering services or specialized tools, equipment and instruments, to the same extent as on the original work. It is understood and agreed that, unless otherwise agreed to in writing by Westinghouse, Westinghouse assumes no responsibility with respect to the suitability of the purchaser's equipment or with respect to any latent defects in the same. In no event shall Westinghouse be responsible for providing working access to the defect, including the removal, disassembly, re-

**TRANSFORMER CONSULTANTS**  
A DIVISION OF S.D. MYERS INC.

P.O. BOX 4724, AKRON, OH 44310

6029

CUS: CERRO COPPER PRODUCTS

CITY E ST LOUIS IL

07320000

DATE RECEIVED 5/23/88

SUB NAME EXTRUSION BAY

UNIT # 169

OTHER BOLT TOP

LOCATION OUTDOOR/GROUND

**NAMEPLATE DATA**

MFG. GE	EQUIP. TYPE	TRANSFORMER
DATE MFG.	TRANS CLASS	0A
S/N 3762780	IMPEDANCE	4.99%
KVA 833	PHASE/CYCLE	3/60
PRI 13,800	LIQUID TYPE	OIL
SEC 460	GAL LIQUID	600

**ADDITIONAL EQUIPMENT**

RADIATORS	YES	CONSERVATORS	NO
FANS	NO	LTC COMP	NO
H-O COOLED	NO	BUSHING LOC	TOP
OIL PUMPS	NO	HOSE LENGTH	100 FEET
TOP FPV	1.00 IN	DE-ENERGIZED	
BOTTOM FPV	1.00 IN	POWER V/A	400/30
OTHER ACCESS			

**VISUAL INSPECTION**

PAINT CONDITION BAD LEAKS YES/BFPV

**FIELD SERVICE**

9/74 RE-REFINE 10/86 RE-REFINE

**LIQUID SCREEN TEST DATA**

DATE	SERVICE	LEVEL	TEMP	P/V	ACID	IFT	DIEL	COLOR	SP. GR.	VISUAL	SEDIMENT
9/00/80					.040 AC	35.5 AC	41 AC	2.50 AC	0.880 AC	CLEAR AC	NONE AC
9/00/81					.050 AC	33.5 AC	50 AC	2.50 AC	0.880 AC		SET SEPT. Q1
6/00/82					.050 AC	35.1 AC	50 AC	2.50 AC	0.880 AC	CLEAR AC	NONE AC
4/27/83			38 C		.040 AC	34.2 AC	36 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/14/84		LOW	18 C		.040 AC	32.0 AC	41 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC
7/16/85		NORMAL	40 C		.060 QU	30.8 QU	36 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC
7/07/86		NORMAL	47 C		.050 AC	30.1 QU	39 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC
10/30/86	PROOF				.020 AC	43.5 AC	46 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC
5/27/87		NORMAL	43 C		.030 AC	39.9 AC	36 AC	1.00 AC	0.875 AC	CLEAR AC	NONE AC
5/04/88		NORMAL	25 C		.020 AC	38.8 AC	35 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC

COMMENTS TRANSFORMER OIL TEST DATA ACCEPTABLE, HOWEVER STUDIES INDICATE OXIDATION BY-PRODUCTS TRAPPED IN INSULATION.

**GAS-IN-OIL ANALYSIS / GAS CHROMATOGRAPHY EXPRESSED IN PPM**

DATE	SERVICE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUSTIBLE	TOTAL GAS
12/19/79		ND	26758	58024	2	8	454	ND	4	ND	14	85250
10/04/80		ND	27443	63774	TRACE	TRACE	895	ND	13	ND	13	92125
9/09/81		ND	25855	55470	ND	2	467	ND	ND	ND	2	81794
6/07/82		ND	24005	63074	ND	9	347	ND	ND	ND	9	87435
5/02/83		ND	26004	62320	ND	2	521	ND	ND	ND	2	88847
5/14/84		ND	25007	63988	ND	ND	381	TRACE	TRACE	ND	TRACE	89376
7/24/85		ND	28780	61731	ND	14	614	ND	4	ND	18	91143
7/07/86		ND	23259	48519	TRACE	TRACE	507	ND	1	ND	1	72286
5/27/87		ND	22477	47844	ND	1	392	ND	ND	ND	1	70714
5/04/88		TRACE	29225	61039	1	11	469	1	3	ND	16	90749

RECOMMENDATION

\* COMMENTS

RETEST 1 YEAR

\* 8-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME.

\*

C02467

**CAUTION** HIGH VOLTAGE HAZARD OF ELECTRICAL SHOCK OR BURN

**CAUTION** FOR YOUR SAFETY DO NOT ATTEMPT TO INSTALL, REPAIR, OR SERVICISE THIS PRODUCT BEFORE READING INSTRUCTIONS CAREFULLY.

**CAUTION** ALWAYS WEAR PROTECTIVE GEAR AND SPECIAL SAFETY EQUIPMENT. THIS LAMP HAS A HIGH VOLTAGE DISCHARGE TUBE WHICH CAN BE DAMAGED BY SHOCK OR VIBRATION.

**CAUTION** THIS TRANSFORMER MUST BE DISCONNECTED FROM ALL POWER SOURCES BEFORE ANY REPAIRS OR MAINTENANCE ARE PERFORMED. RELEASE PRESSURE BEFORE REMOVING BULB.

**CAUTION** THE CONTROL CABLES CONTAINING SOME EQUIPMENT OPERATING AT HIGH VOLTAGE. THESE CABLES MUST BE KEPT AWAY FROM ANY ELECTRICAL EQUIPMENT. NEVER TOUCH THESE CABLES WHEN THE EQUIPMENT IS ON.

**CAUTION** THE EQUIPMENT MUST BE KEPT AWAY FROM ANY ELECTRICAL EQUIPMENT. NEVER TOUCH THESE CABLES WHEN THE EQUIPMENT IS ON.

FIG. 35 STANDARD WARNING PLATE

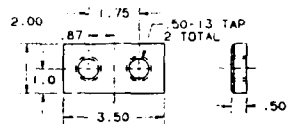


FIG. 1 GROUND PAD

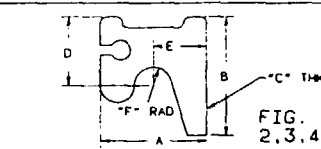


FIG. 2, 3, 4

FIG	TOT. WT	A	B	C	D	E	F
2	15000	5.255	2.5	6.25	3.32	7.1	1.00
3	30000	6.507	0.0	8.75	5.03	2.1	2.5
4	37500	7.50	2.0	5.05	2.4	2.1	2.5

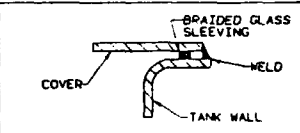


FIG. 5 COVER WELDMENT

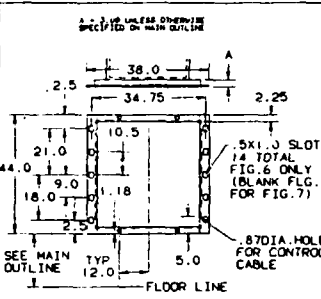


FIG. 6 H.V. M.V. Z-BAR FLG.  
FIG. 7 L.V. Z-BAR FLG.

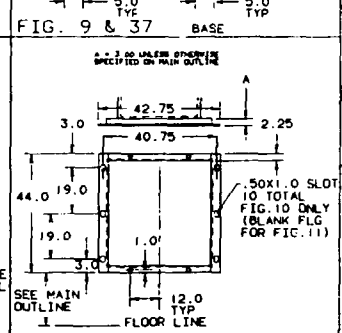
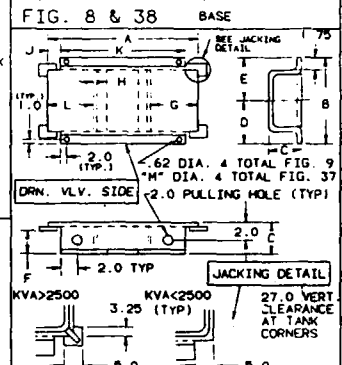
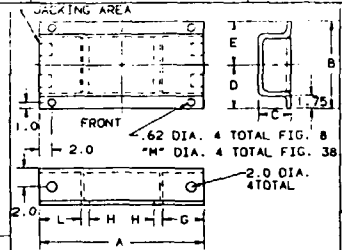


FIG. 10 H.V. Z-BAR FLANGE INDOOR  
FIG. 11 H.V. Z-BAR FLANGE OUTDOOR

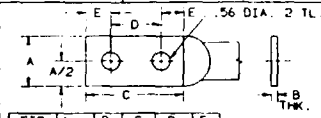


FIG. 12 & 13 BUSHING SPADE

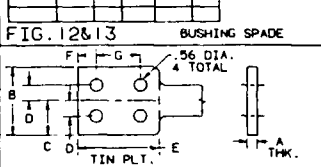


FIG. 14 & 15 & 32 BUSHING SPADE

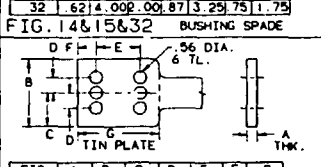


FIG. 16 & 36 BUSHING SPADE

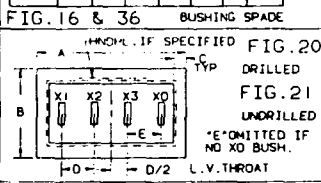


FIG. 20 & 21 L.V. THROAT

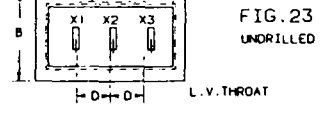


FIG. 22 & 23 L.V. THROAT

NOTE: \*A .50 HEX. NO. 8 BOLT WITH .50 WASHER .50 LOCKWASHER (THIS HARDWARE IS FOR SHIPMENT ONLY) (SWITCHGEAR MUST SUPPLY INSTALLATION HARDWARE) \*B ALL DIMENSIONS ARE IN INS. AND WEIGHTS ARE IN POUNDS SEE DRAWING 6764D27 FOR METRIC MEASUREMENTS

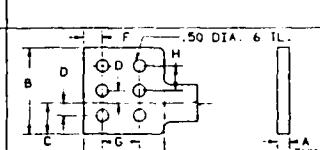


FIG. 34 BUSHING SPADE

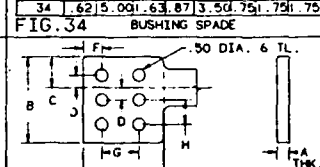


FIG. 33 BUSHING SPADE

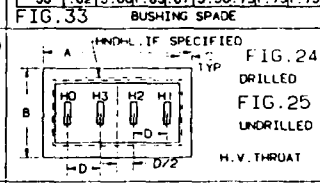


FIG. 24 & 25 H.V. THROAT

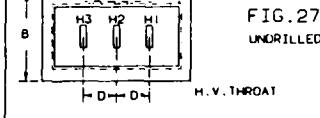


FIG. 26 & 27 H.V. THROAT

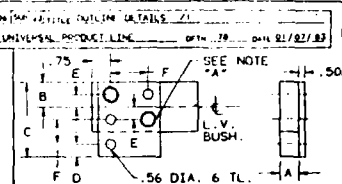


FIG. 17 & 18 L.V. BUSH. ADAPTER

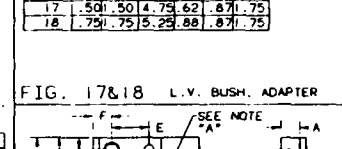


FIG. 19 L.V. BUSH. ADAPTER

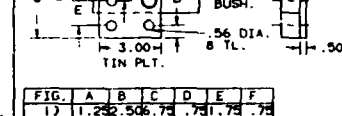


FIG. 28 & 29 H.V. THROAT

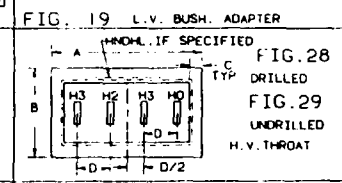


FIG. 30 & 31 L.V. THROAT

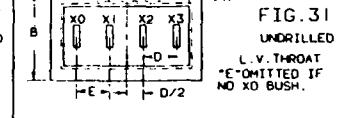


FIG. 32 & 33 L.V. THROAT

TYPE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
TYPE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

C02468

CUSTOMER NOTE: THIS IS A STANDARD DWG. WHICH IS USED FOR ALL CUSTOMERS. IT IS NOT TO BE MODIFIED OR PERSONALIZED FOR ANY INDIVIDUAL CUSTOMER. THE SPECIFIC FIGURE NUMBERS APPLY TO YOUR ORDER. DISREGARD ALL OTHER FIGURE REFERENCES.

PREPARED BY: INC. DRAWING NO. 6764D27

WESTINGHOUSE ELECTRIC CORPORATION

APPROPRIATE UNIVERSAL PRODUCT LINE

DETAILS

DATE: 12/82

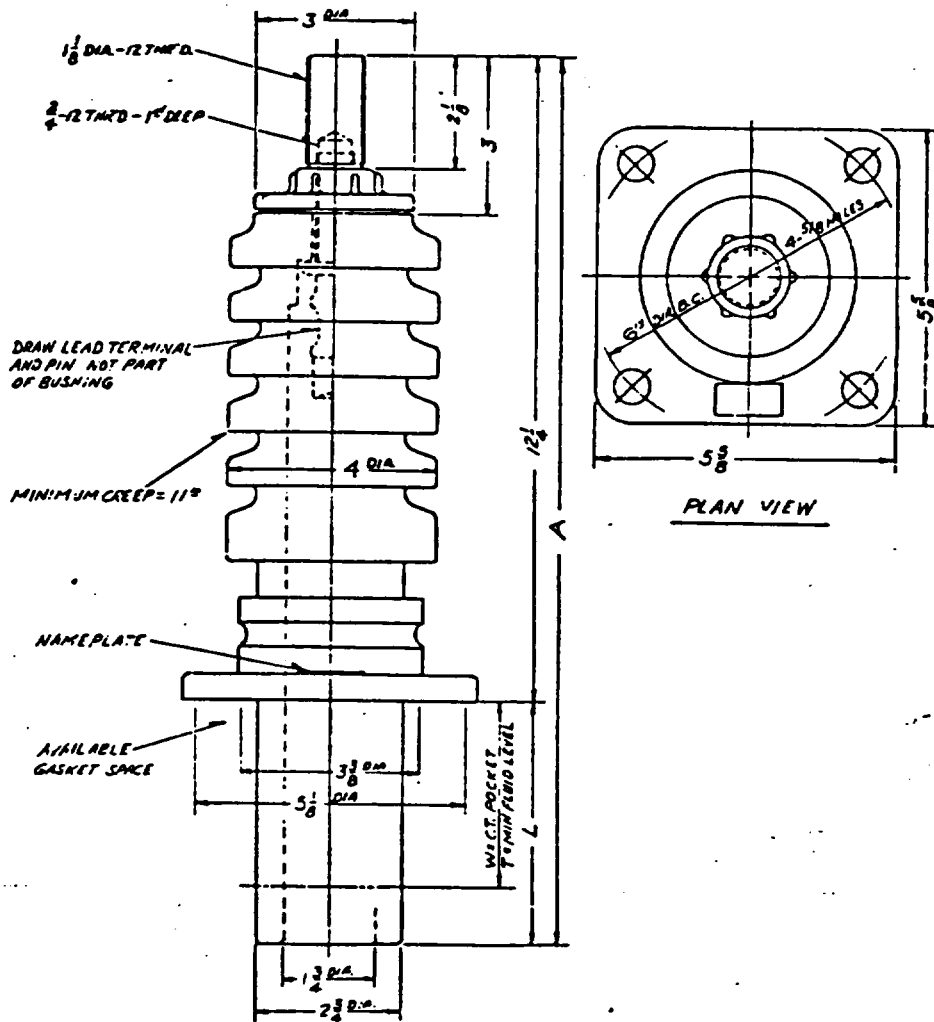
BY: [Signature]

CH: [Signature]

6764D26

Westinghouse

**15 KV BUSHING, TYPE RJ**  
**800 AMPERES, 110 BIL, DRAW LEAD CONSTRUCTION**  
**NEMA STANDARD**



LINE	STYLE NO.	COLOR	A	L	W	T	NET WT. POUNDS
1	234C115G01	CHOC	25 3/8	13 1/2	10		11 3/8
2	234C115G24	GRAY					
3	234C115G02	CHOC	32 1/8	20	16 1/2		13 3/8
4	234C115G35	GRAY					
5	234C115G03	CHOC	36 3/8	24 1/2	21		15 1/8
6	234C115G36	GRAY					

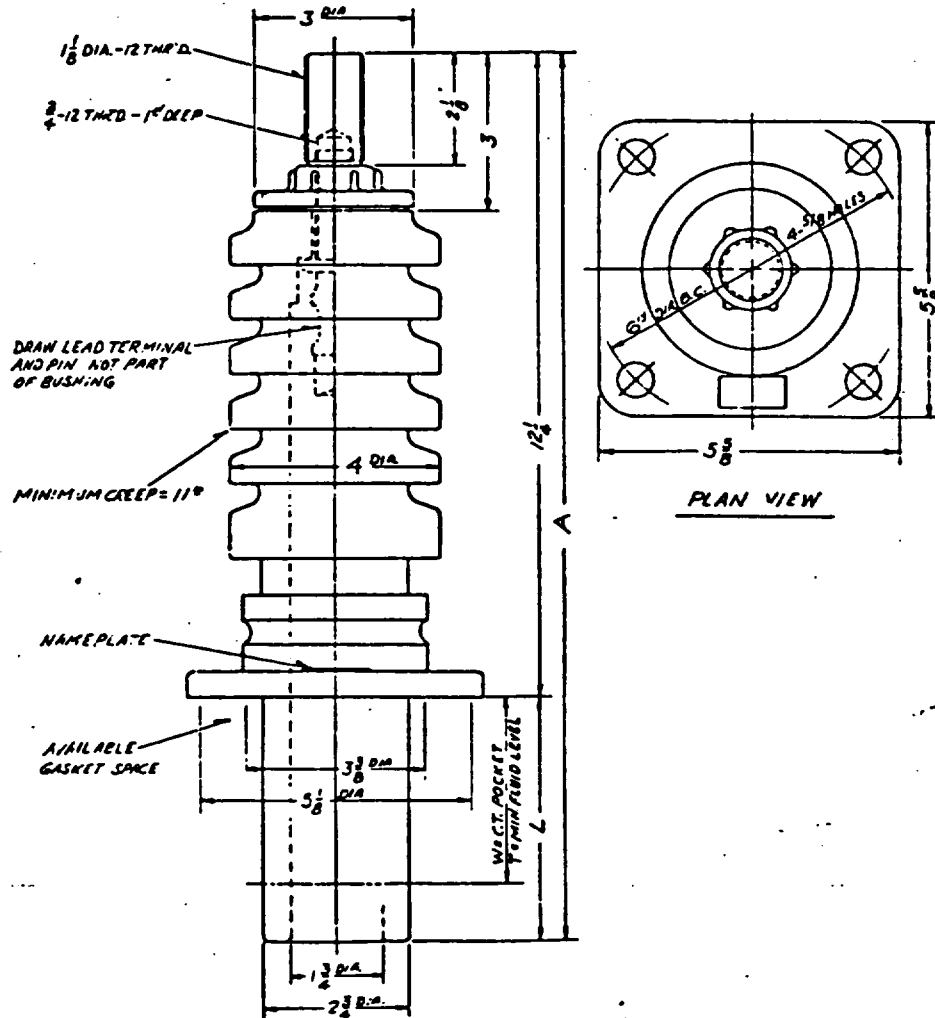
EFFECTIVE DECEMBER, 1970

DIMENSION SHEET 48.061.63

C02469

Westinghouse

**15 KV BUSHING, TYPE RJ**  
**600 AMPERES, 110 BIL, DRAW LEAD CONSTRUCTION**  
**NEMA STANDARD**



LINE	STYLE NO.	COLOR	A	L	W	T	NET WT. POUNDS
1	234C115G01	CHOC	25 3/4	13 1/2	10		11 3/4
2	234C115G02	GRAY	25 3/4	13 1/2	10		11 3/4
3	234C115G03	CHOC	32 1/4	20	16 1/2		13 3/4
4	234C115G04	GRAY	32 1/4	20	16 1/2		13 3/4
5	234C115G05	CHOC	36 3/4	24 1/2	21		15 1/4
6	234C115G06	GRAY	36 3/4	24 1/2	21		15 1/4

EFFECTIVE DECEMBER, 1970

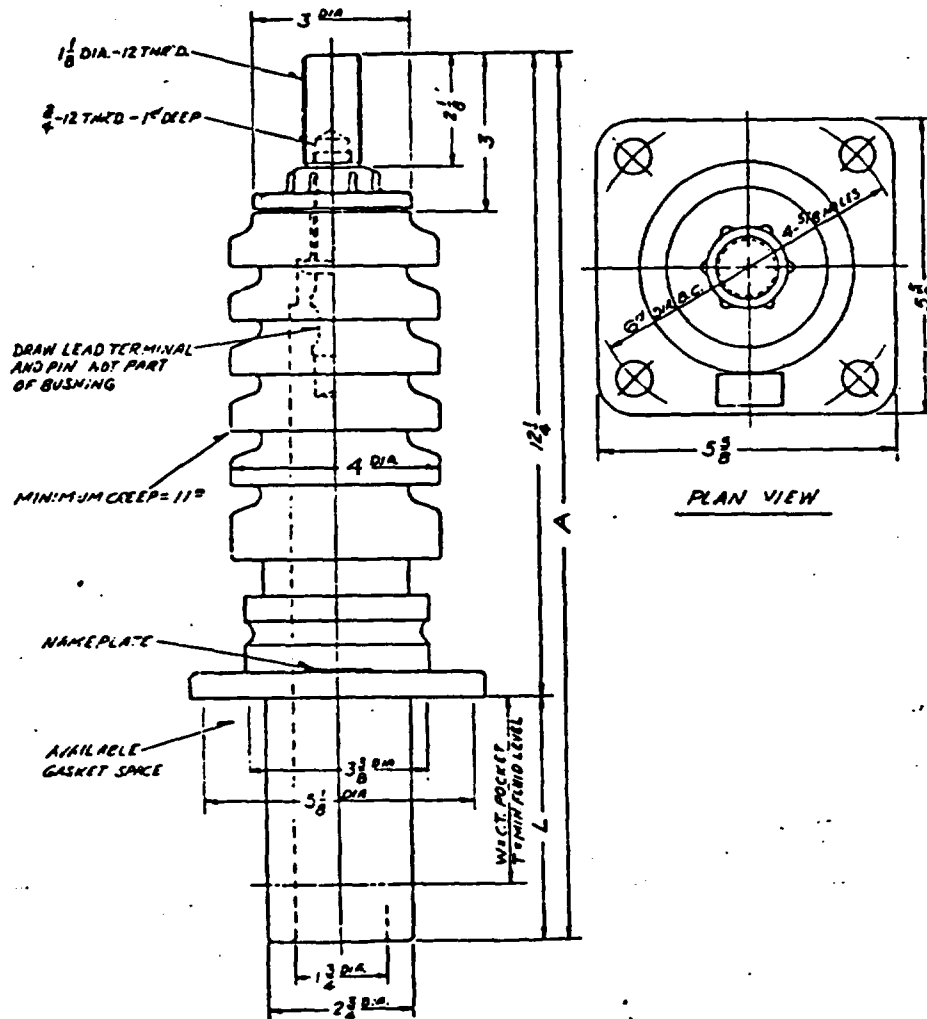
DIMENSION SHEET 48.061-63

C02470



Westinghouse

**15 KV BUSHING, TYPE RJ**  
**600 AMPERES, 110 BIL, DRAW LEAD CONSTRUCTION**  
**NEMA STANDARD**

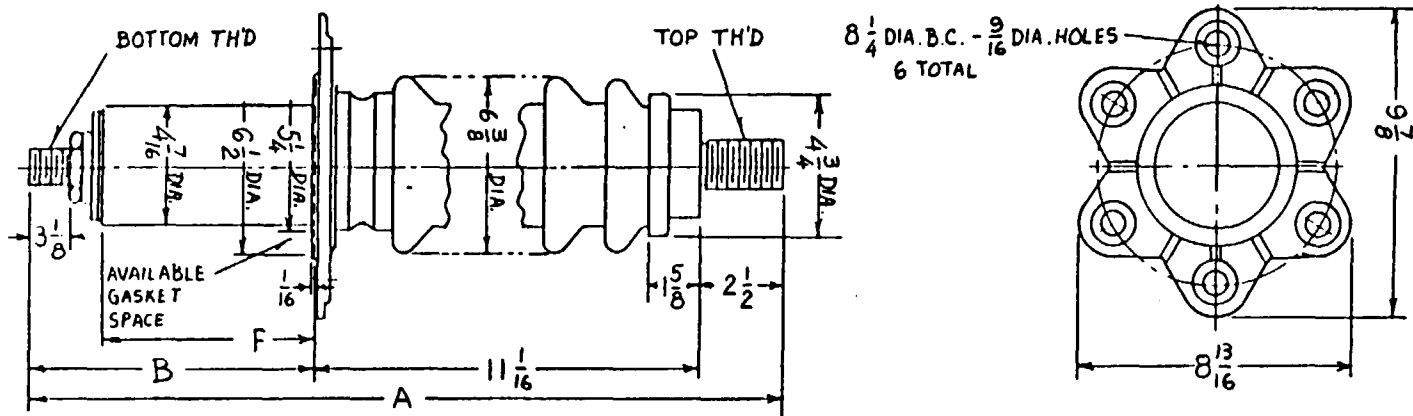


LINE	STYLE NO.	COLOR	A	L	W	NET WT POUNDS
1	234C/15G01	CHOC	25 3/4	13 1/2	10	11 1/8
2	234C/15G04	GRAY	25 3/4	13 1/2	10	11 1/8
3	234C/15G02	CHOC	32 1/4	20	16 1/2	13 3/8
4	234C/15G03	GRAY	32 1/4	20	16 1/2	13 3/8
5	234C/15G03	CHOC	36 3/4	24 1/2	21	15 1/8
6	234C/15G06	GRAY	36 3/4	24 1/2	21	15 1/8

EFFECTIVE DECEMBER, 1970

DIMENSION SHEET 48-061-63

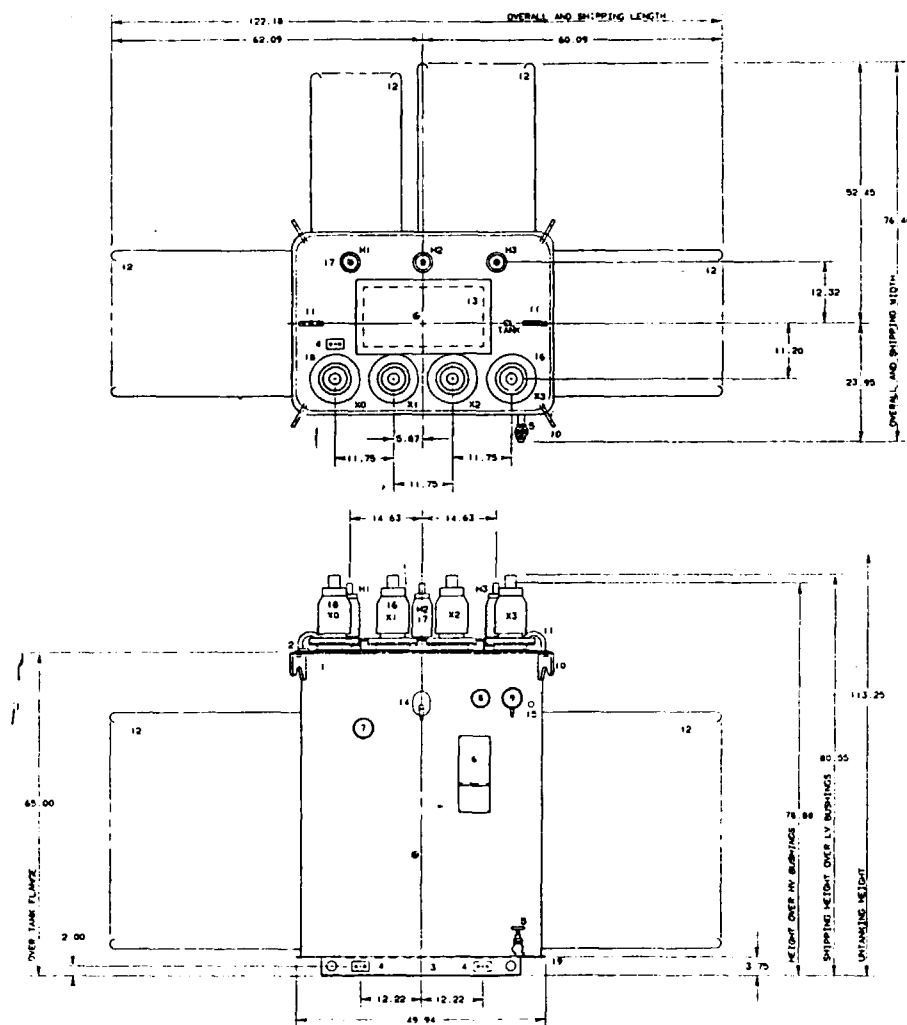
C02471



# **BULK TYPE "R" BUSHING** **15 KV SYSTEM**

LINE NO.	DWG.	GR.	COLOR	KV	CURRENT RATING	A	B	F	EST. WT.	BOTTOM TH'D	TOP TH'D	FOR USE IN
1	784C290	1	GRAY	15	4100	33 1/2	19 5/16	16	80	2 1/2-12	2 1/2-12	OIL
2		2			3300	26 7/8	13 5/16	9 3/8	59	2 1/4-12	2 1/4-12	
3		3			4100	36 7/8	23 5/16	19 3/8	86	2 1/2-12	2 1/2-12	
4		4			3300	47 1/2	33 15/16	30	102	2 1/4-12	2 1/4-12	
5		5			4100	41 7/8	28 5/16	24 3/8	99	2 1/2-12	2 1/2-12	
6		6				41 7/8	28 5/16	24 3/8	90			
7		7			3300	36 7/8	23 5/16	19 3/8	79	2 1/4-12	2 1/4-12	INERT.
8		8				31 7/8	18 5/16	14 3/8	69			
9		9			3300	36 7/8	23 5/16	19 3/8	79	2 1/4-12	2 1/4-12	
10												
11	27B1930	1	CHOC	15	3300	36 7/8	23 5/16	19 3/8	79	2 1/4-12	2 1/4-12	OIL
12		2				41 7/8	28 5/16	24 3/8	90			
13		3			4100	33 1/2	19 5/16	16	80	2 1/2-12	2 1/2-12	
14		5			3300	26 7/8	13 5/16	9 3/8	59	2 1/4-12	2 1/4-12	
15		6			4100	36 7/8	23 5/16	19 3/8	86	2 1/2-12	2 1/2-12	
16		7				41 7/8	28 5/16	24 3/8	99			
17		8			3300	47 1/2	33 15/16	30	102	2 1/4-12	2 1/4-12	
18		12				31 7/8	18 5/16	14 3/8	69			
19												
20												

Westinghouse



OUTLINE  
APPARATUS SUBSTATION TRANSFORMER DTH 62 DATE 11/21/88

#### NOTES

SEE INSTRUCTION BOOK FOR INSTALLATION AND MAINTENANCE. THIS OUTLINE CAN BE USED FOR ERECTION OR MOUNTING PURPOSES. IT IS NOT TO BE REGARDED AS INDICATING THE EXACT DETAILS OF CONSTRUCTION. THE TOTAL WEIGHT MUST NOT BE LIFTED UNLESS THE COVER IS WELDED IN PLACE. THE CORE AND COILS ARE BRACED INSIDE THE TANK FOR SHIPMENT. IT IS NOT NECESSARY TO REMOVE THESE BRACES BEFORE PLACING THE UNIT IN SERVICE BEFORE BREAKING THE SEAL ON ANY OPENING. BE SURE THE LIQUID LEVEL IS LOWERED BELOW THE OPENING. THE TRANSFORMER IS OF SEALED-AIR CONSTRUCTION. THE GAS SPACE IS SEALED TO PREVENT BREATHING UNDER NORMAL OPERATING CONDITIONS. GASKETS UNDER THE FOLLOWING ITEMS ARE CENTERED ON ONE SIDE AT THE FACTORY.

#### APPROXIMATE NET WEIGHTS

COIL AND COILS	5970	LBS
TANK AND FITTINGS	2887	LBS
LIQUID - OIL 254 GAL	1930	LBS
APPROXIMATE TRANSFORMER SHIPPING WEIGHT	10777	LBS
TOTAL WEIGHT	10777	LBS

#### TRANSFORMER FITTINGS AND DESCRIPTIONS

- 1 TANK - BRACED FOR 8 P.S.I. VACUUM OR POSITIVE PRESSURE
- 2 COVER - WELDED TO TANK FLANGE SEE DETAIL FIG. 5
- 3 BASE - JACKING AREA AT ENDS - SEE DETAIL FIG. 8. THE BASE IS DESIGNED TO PERMIT ROLLING IN DIRECTION PARALLEL TO TANK CENTER LINES.
- 4 COILS - 3 TOTAL - SEE DETAIL FIG. 1
- 5 DRAIN VALVE - 1 INCH FOR COMBINATION LOWER FILTER PRESS CONNECTION AND COMPLETE DRAIN WITH 3/8 INCH SAMPLER
- 6 DISCHARGE INSTRUCTION PLATE WITH WARNING PLATE SEE DETAIL FIG. 39 FOR THE STANDARD WARNING PLATE
- 7 SLO TO TEMPERATURE INDICATOR WITH MAXIMUM INDICATING HAND
- 8 MAGNETIC LIQUID LEVEL GAUGE
- 9 AIR TEST VALVE AND SEALING VALVE
- 10 LIFTING HOOPS - 4 TOTAL FOR LIFTING COMPLETE UNIT. SEE DETAIL FIG. 2
- 11 LIFTING LOOPS - 2 TOTAL FOR LIFTING COVER ONLY
- 12 COOLING LINES
- 13 LITTLE HANDBOLE ON COVER OVER A 12 O.D. X 24 O.D. OPENING
- 14 DE-COVER LIFTING TAP CHANGER OPERATING MECHANISM - WITH PROVISIONS FOR PACKING
- 15 1 INCH LOWER FILTER PRESS CONNECTION
- 16 LV BUSHING - 3 TOTAL
- 17 HV BUSHING - 3 TOTAL
- 18 HV BUSHING - 3 TOTAL
- 19 HV BUSHING - 3 TOTAL
- 20 HV BUSHING - 3 TOTAL
- 21 HV BUSHING - 3 TOTAL
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- 96 HV BUSHING - 3 TOTAL
- 97 HV BUSHING - 3 TOTAL
- 98 HV BUSHING - 3 TOTAL
- 99 HV BUSHING - 3 TOTAL
- 100 HV BUSHING - 3 TOTAL

SEND PRINTS TO CUSTOMER  
6 TRANSFORMER CENTER OF GRAVITY COMPLETE  
CENTER OF GRAVITY FROM GROUND TO FRONT VIEW - 24.34  
CENTER OF GRAVITY LEFT OF CENTERLINE TOP VIEW - 1.31  
CENTER OF GRAVITY ABOVE CENTERLINE TOP VIEW - 1.60

C02473

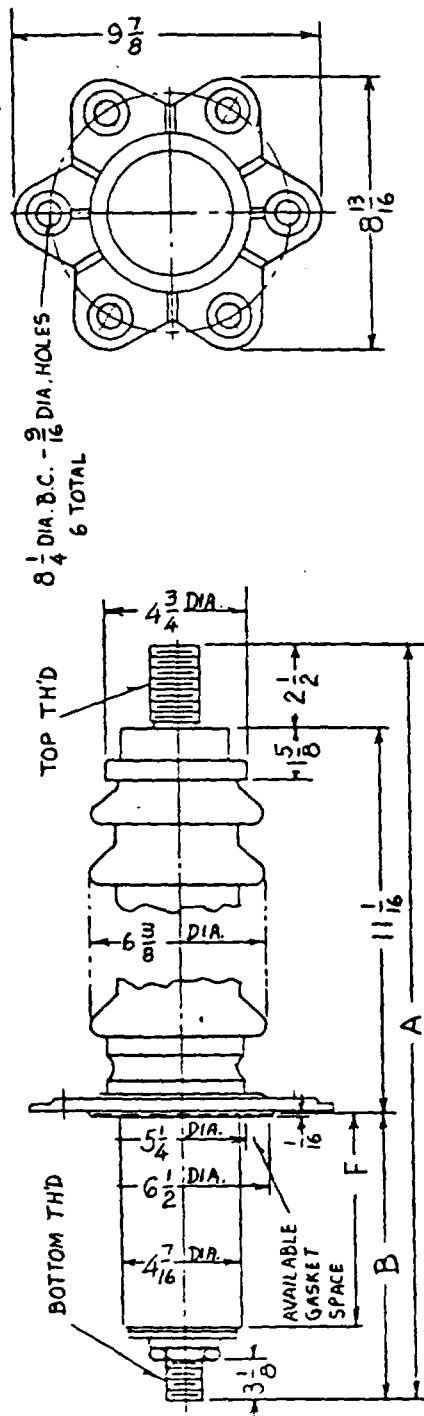
TEMP RISE	OA	KVA
65 ° C	2500	

DESIGN IMPEDANCE 5.75%		HV 110		LV 45		BIL 65°		RISE	
WESTINGHOUSE ELECTRIC CORPORATION									
CLASS 0A OUTLINE									
60 KVA 2500 KVA HV 13800V LV 480V/277V 3 PH									
DIMENSIONS IN INCHES SCALE NTS									
DATE 11/21/88									
2062557									

# BULK TYPE "R J" BUSHING

## 15 KV SYSTEM

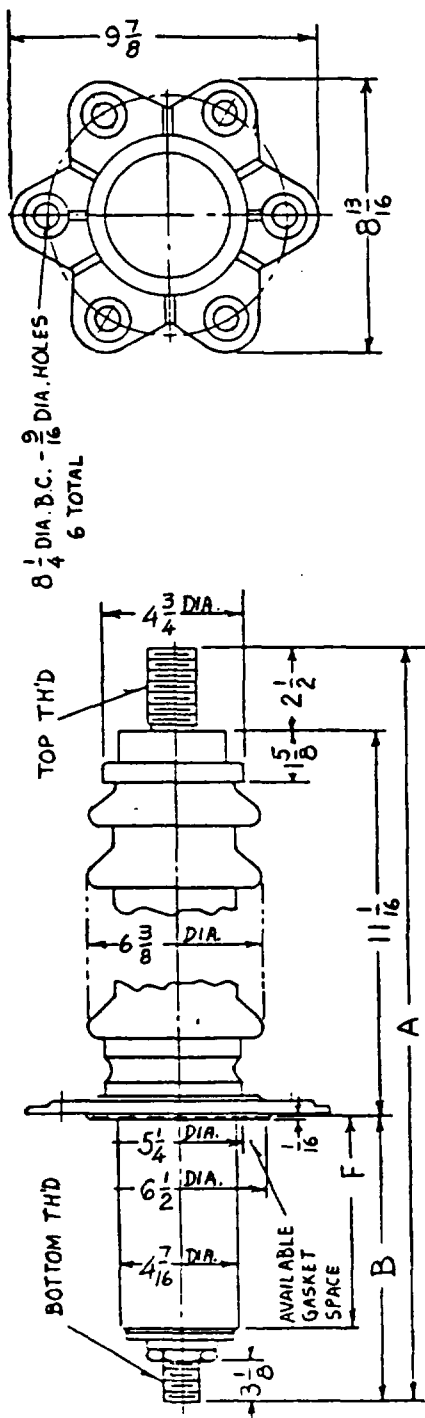
DWG. NO. REF. 231-C-489



LINE NO.	DWG.	GR.	COLOR	KV	CURRENT RATING	A	B	F	EST. WT.	BOTTOM TH'D	TOP TH'D	FOR USE IN
1		1			4100	$33\frac{1}{2}$	$19\frac{5}{16}$	16	80	$2\frac{1}{2}$ -12	$2\frac{1}{2}$ -12	OIL
2		2			3300	$26\frac{7}{8}$	$13\frac{3}{16}$	$9\frac{3}{8}$	59	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
3		3			4100	$36\frac{7}{8}$	$23\frac{3}{16}$	$19\frac{3}{8}$	86	$2\frac{1}{2}$ -12	$2\frac{1}{2}$ -12	OIL
4		4			3300	$47\frac{1}{2}$	$33\frac{1}{8}$	30	102	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
5		5	GRAY	15	4100	$41\frac{7}{8}$	$28\frac{5}{16}$	$24\frac{3}{8}$	99	$2\frac{1}{2}$ -12	$2\frac{1}{2}$ -12	OIL
6	784C290	6				$41\frac{7}{8}$	$28\frac{5}{16}$	$24\frac{3}{8}$	90			
7		7			3300	$36\frac{7}{8}$	$23\frac{3}{16}$	$19\frac{3}{8}$	79	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
8		8				$31\frac{1}{8}$	$18\frac{7}{16}$	$14\frac{3}{8}$	69			
9		9			3300	$36\frac{7}{8}$	$23\frac{5}{16}$	$19\frac{3}{8}$	79	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	INERT.
10												
11		1			3300	$36\frac{7}{8}$	$23\frac{5}{16}$	$19\frac{3}{8}$	79	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
12		2				$41\frac{7}{8}$	$28\frac{5}{16}$	$24\frac{3}{8}$	90			
13		3			4100	$33\frac{1}{2}$	$19\frac{5}{16}$	16	80	$2\frac{1}{2}$ -12	$2\frac{1}{2}$ -12	OIL
14		5			3300	$26\frac{7}{8}$	$13\frac{3}{16}$	$9\frac{3}{8}$	59	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
15	27B1930	6	CHOC	15	4100	$36\frac{7}{8}$	$23\frac{5}{16}$	$19\frac{3}{8}$	86	$2\frac{1}{2}$ -12	$2\frac{1}{2}$ -12	OIL
16		7				$41\frac{7}{8}$	$28\frac{5}{16}$	$24\frac{3}{8}$	99			
17		8			3300	$47\frac{1}{2}$	$33\frac{1}{8}$	30	102	$2\frac{1}{4}$ -12	$2\frac{1}{4}$ -12	OIL
18		12				$31\frac{1}{8}$	$18\frac{7}{16}$	$14\frac{3}{8}$	69			
19												
20												

C02474

# BULK TYPE "R J" BUSHING 15 KV SYSTEM



LINE NO.	DWG.	GR.	COLOR	KV	CURRENT RATING	A	B	F	EST. WT.	BOTTOM TH'D.	TOP TH'D.	FOR USE IN
1	784C290	1	GRAY	15	4100	33 1/2	19 5/16	16	80	2 1/2-12	2 1/2-12	OIL
2		3300			26 7/8	13 5/16	9 3/8	59	2 1/4-12	2 1/4-12		
3		4100			36 7/8	23 3/16	19 3/8	86	2 1/2-12	2 1/2-12		
4		3300			47 1/2	33 3/8	30	102	2 1/4-12	2 1/4-12		
5		4100			41 7/8	28 5/16	24 3/8	99	2 1/2-12	2 1/2-12		
6		3300			41 7/8	28 5/16	24 3/8	90	2 1/4-12	2 1/4-12		
7					36 7/8	23 3/16	19 3/8	79				
8					31 7/8	18 3/16	14 3/8	69				
9		3300			36 7/8	23 5/16	19 3/8	79	2 1/4-12	2 1/4-12	OIL	
10												
11	27B1930	1	CHOC	15	3300	36 7/8	23 5/16	19 3/8	79	2 1/4-12		2 1/4-12
12		41 7/8			28 5/16	24 3/8	90	2 1/2-12	2 1/2-12			
13		4100			33 1/2	19 3/16	16	80	2 1/2-12	2 1/2-12		
14		3300			26 7/8	13 3/16	9 3/8	59	2 1/4-12	2 1/4-12		
15		36 7/8			23 3/16	19 3/8	86	2 1/2-12	2 1/2-12			
16		41 7/8			28 5/16	24 3/8	99	2 1/4-12	2 1/4-12			
17		47 1/2			33 5/16	30	102					
18		31 7/8			18 3/16	14 3/8	69					
19												
20												

**DANGER**

**HIGH VOLTAGE**  
HAZARD OF ELECTRICAL SHOCK OR BURN

CAUTION: DO NOT TOUCH ANY PART OF THE UNIT WHILE IT IS ENERGIZED. IF CONTACT WITH ENERGIZED PARTS IS MADE, STOP IMMEDIATELY AND REPORT TO SUPERVISOR.

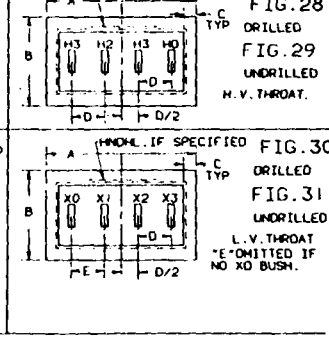
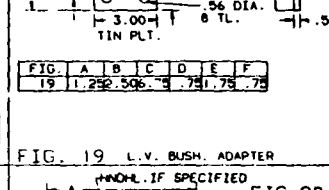
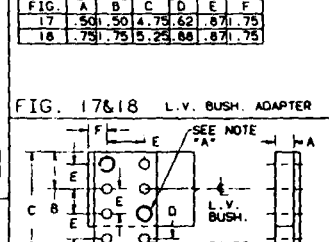
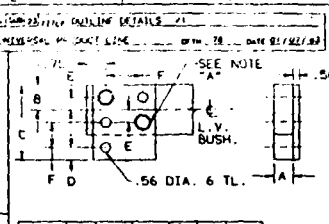
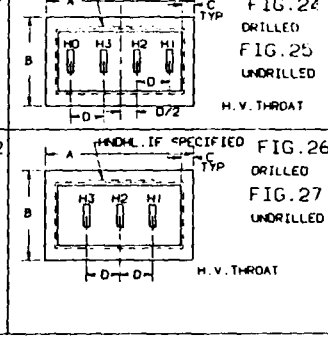
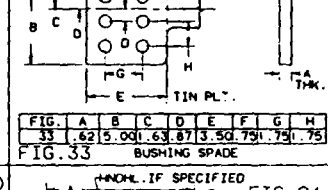
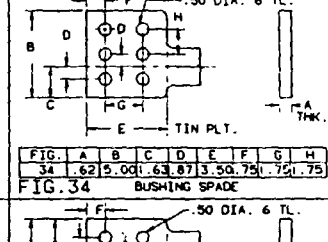
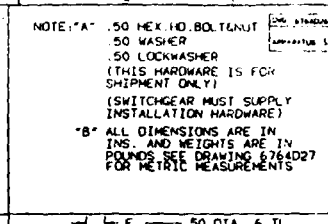
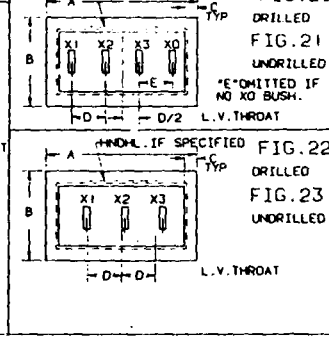
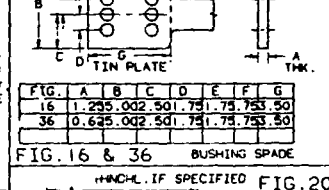
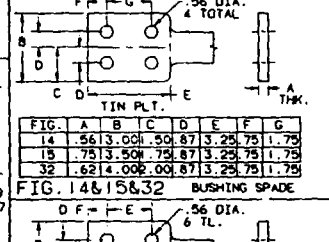
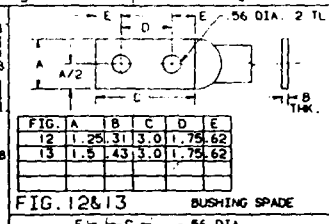
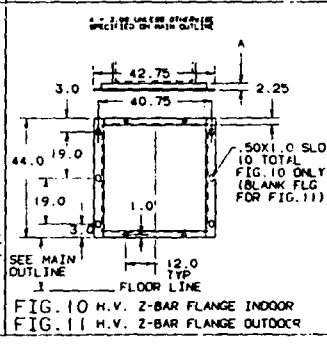
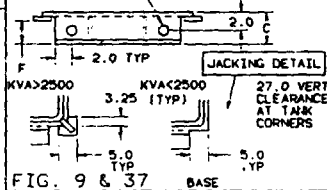
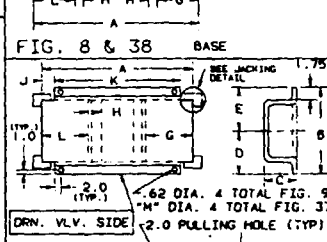
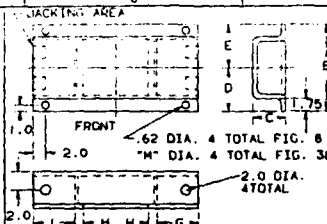
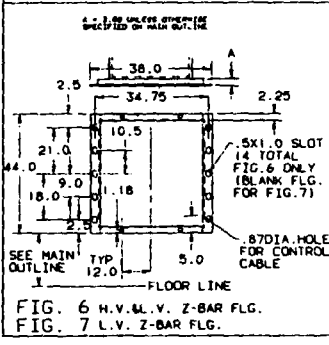
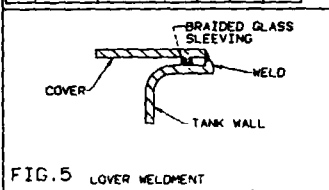
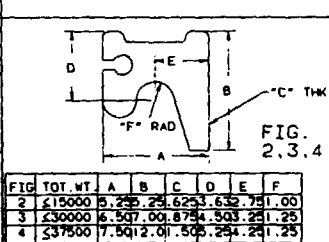
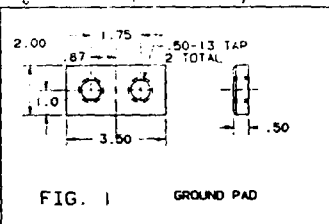
CAUTION: READ ALL INSTRUCTIONS AND SAFETY PRECAUTIONS BEFORE USING THIS EQUIPMENT. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DEATH OR SERIOUS INJURY.

CAUTION: THIS EQUIPMENT MAY BE USED TO MEASURE VOLTAGE, CURRENT, AND RESISTANCE. ALWAYS USE THE CORRECT RANGE AND FUNCTION FOR THE MEASUREMENT. FAILURE TO DO SO MAY DAMAGE THE EQUIPMENT OR THE MEASUREMENT.

CAUTION: THE EQUIPMENT SHOULD BE USED ON A NON-CONDUCTIVE SURFACE. ALWAYS USE THE CORRECT PROBE AND LEADS FOR THE MEASUREMENT. FAILURE TO DO SO MAY DAMAGE THE EQUIPMENT OR THE MEASUREMENT.

CAUTION: THE EQUIPMENT SHOULD BE USED ON A NON-CONDUCTIVE SURFACE. ALWAYS USE THE CORRECT PROBE AND LEADS FOR THE MEASUREMENT. FAILURE TO DO SO MAY DAMAGE THE EQUIPMENT OR THE MEASUREMENT.

FIG. 35 STANDARD WARNING PLATE





TELEFAX TRANSMISSION FROM:  
(213) 726-8224

M.G.M. TRANSPORTATION COMPANY  
5665 SMITHWAY STREET  
COMMERCE, CA 90040

TO: Rich

LOCATION: Emeco

SENDER'S NAME: Roma

DATE/TIME SENT: 1/22/88 1130P NUMBER OF PAGES  
INCLUDING COVER SHEET 5

MESSAGE: Conno. CU.

w/p

Qty 1. 2500/3/60 H2 13800<sup>A</sup> - 480<sup>A</sup> Dry, 150C Pipe  
alum. 1 1/2" Tap, 60KV B/L  
H.V./L.V. Tap Terminations

H.V./L.V. Bus Ends add 650.

Price 20000.00

10 wks.

Frt Incl

w/p.

Qty 1. 2500/3/60 H2 13800<sup>A</sup> - 480<sup>A</sup>, oil, Unit Substa  
H.V. Cover Bushings, L.V. Throat, 65C Pipe  
1 1/2" Tap, ALUM.

Price 16500.00

10-12 WKS.

Frt Incl

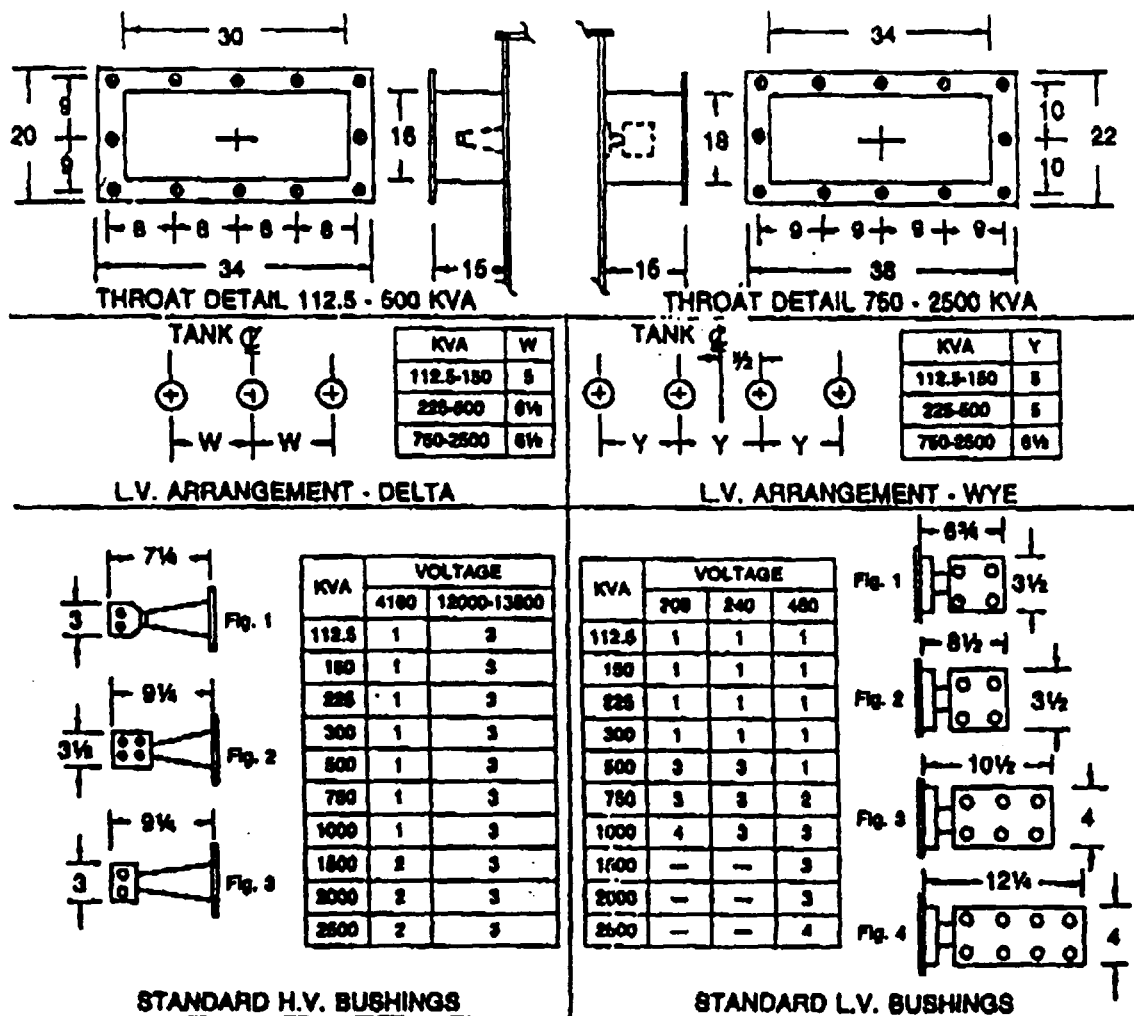
Encl. Bull 50-6

Bull 30-4

C02478



5



### TESTS

Ratio  
Polarity & phasing  
Excitation current  
Resistance  
No load losses  
Load loss  
Impedance  
Applied potential  
Induced potential  
Pressure leak test

### OPTIONAL TESTS

Sound level  
Temperature rise  
Impulse  
Corona level

### OPTIONS

Pressure relief device  
Thermometer with contacts  
Liquid level gage with contacts  
Non-flammable coolant  
Rapid rise relay  
Forced air cooling  
(750 KVA and above)  
Pressure — vacuum bleeder device

### ORDER SPECIFICATION

CUSTOMER				PURCHASE ORDER		REPRESENTATIVE
QUAN.	HZ	COOLANT	PRIM. VOLTS	<input type="checkbox"/> ALUM <input type="checkbox"/> COPPER	APPROVAL DRWGS	PLANT INSPECTION RECORD
KVA	TEMP. RISE	BIL	TAPS	SOUND LEVEL	RECORD DRWGS	DELIVERY DATE
PHASE	COOLING	% IMP.	SEC. VOLTS	FINISH	CERT. TEST REPORTS	SPECIAL CARRIER

SPECIAL REQUIREMENTS

C02479

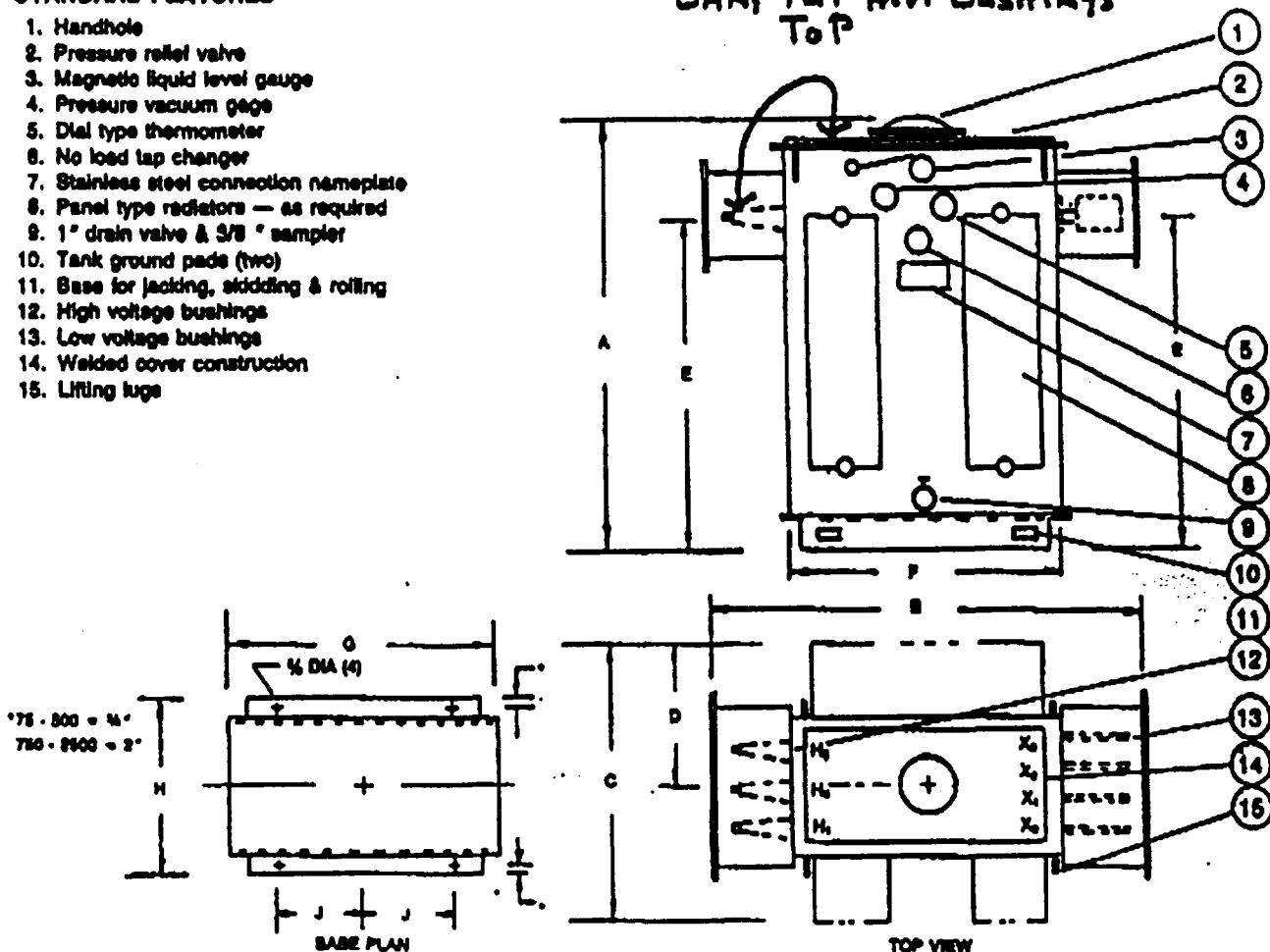


## SECONDARY SUBSTATIONS 15" THROATS LEFT HAND FEED

### STANDARD FEATURES

1. Handhole
2. Pressure relief valve
3. Magnetic liquid level gauge
4. Pressure vacuum gage
5. Dial type thermometer
6. No load tap changer
7. Stainless steel connection nameplate
8. Panel type radiators — as required
9. 1" drain valve & 3/8" sampler
10. Tank ground pads (two)
11. Base for jacking, skidding & rolling
12. High voltage bushings
13. Low voltage bushings
14. Welded cover construction
15. Lifting lugs

CAN, PUT H.V. BUSHINGS  
TOP



60° RISE											
KVA	A	B	C	D	E	F	G	H	J	GAL. LIQUID	TOTAL WT.
112.5	48 1/4	68 1/4	38	22	33	38 1/4	40	28	10	84	2075
150	48 1/4	68 1/4	38	22	33	38 1/4	40	28	10	84	2225
225	50 1/4	75	44	27	37	45	48 1/4	28	13 1/4	137	3000
225	50 1/4	75	44	27	37	45	48 1/4	28	13 1/4	137	3400
500	54 1/4	78 1/4	53 1/4	34 1/4	41	48 1/4	50	32	15	183	4800
750	77 1/4	78 1/4	55 1/4	36 1/4	51	48 1/4	50	35	15 1/4	293	6850
1000	77 1/4	78 1/4	55 1/4	36 1/4	51	48 1/4	50	35	15 1/4	293	7850
1500	84 1/4	82 1/4	65	45	68	52 1/4	54	37	15	373	10200
2000	84 1/4	86 1/4	61	40 1/4	68	56 1/4	58	38	15	420	11750
2500	86 1/4	86 1/4	65	47 1/4	70	56 1/4	58	40	15	487	13750

55°/60° RISE											
KVA	A	B	C	D	E	F	G	H	J	GAL. LIQUID	TOTAL WT.
112.5	48 1/4	68 1/4	38	22	33	38 1/4	40	28	10	87	2150
150	48 1/4	68 1/4	42 1/4	25 1/4	33	38 1/4	40	28	10	87	2300
225	50 1/4	75	44	27	37	45	48 1/4	28	13 1/4	143	3125
300	50 1/4	75	47 1/4	30 1/4	37	45	48 1/4	28	13 1/4	143	3500
500	54 1/4	78 1/4	58	40	41	48 1/4	50	32	15	200	5050
750	77 1/4	78 1/4	58	40	51	48 1/4	50	35	15 1/4	307	6850
1000	77 1/4	78 1/4	73	38 1/4	51	48 1/4	50	35	15 1/4	307	8000
1500	84 1/4	82 1/4	82	48	68	52 1/4	54	37	15	383	10700
2000	84 1/4	86 1/4	83	46 1/4	68	56 1/4	58	38	15	440	12350
2500	86 1/4	86 1/4	107	53 1/4	70	56 1/4	58	40	15	487	14300

1) All dimensions are for 95 B.I.L., 60 Hertz Transformers

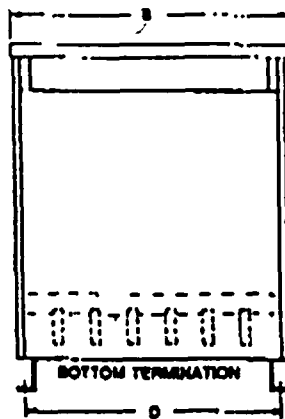
15 KV CLASS

# DRY TYPE GENERAL PURPOSE DISTRIBUTION AND SMALL POWER

OUTDOOR

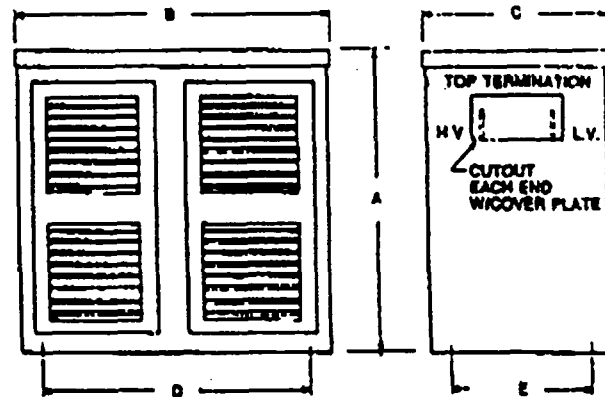
THREE PHASE 60HZ 150°C RISE ALUMINUM

TYPE I



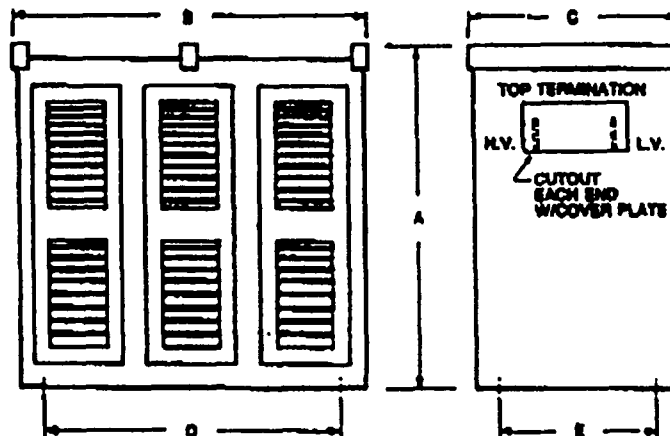
0-112.5 KVA TERMINATIONS — PRIM. & SEC. FRONT  
150-500 KVA — SEC. FRONT — PRIM. REAR

TYPE II



TERMINATIONS — PRIM. TOP FRONT  
SEC. TOP REAR

TYPE III



TERMINATIONS — PRIM. TOP FRONT — SEC. TOP REAR

KVA	A	B	C	D	E	TYPE	% IZ	WEIGHT
30	40½	36½	29½	33½	18	1	4.20	670
45	50½	40½	35¾	37	21	1	4.50	985
50	50½	40½	35¾	37	21	1	4.50	1025
75	50½	40½	35¾	37	21	1	4.50	1150
112½	50½	40½	35¾	37	21	1	5.20	1275
150	66	50½	41¾	47½	24	1	5.50	1875
225	66	50½	41¾	47½	24	1	5.50	2025
300	80	56	35	49¾	28¾	2	6.00	2400
400	80	56	35	49¾	28¾	2	6.00	3200
500	80	64	40	57¾	33¾	2	6.10	3475
750	80	64	40	57¾	33¾	2	6.15	4175
1000	80	72	40	65¾	33¾	2	6.15	5800
1500	92	86	50	78¾	43¾	3	6.10	7950
2000	92	90	50	83¾	43¾	3	6.50	9000
2500	98	100	54	93¾	47¾	3	6.75	10400
3000	98	100	54	93¾	47¾	3	6.75	11500
3750	110	106	64	101¾	57¾	3	7.30	14000
5000	110	120	72	113¾	65¾	3	8.00	18000



# DRY TYPE TRANSFORMERS

**15 KV CLASS**

**OUTDOOR**

RANGE OF MANUFACTURE:  
WINDINGS:  
TEMPERATURE RISE:

9 KVA TO 5000 KVA  
ALUMINUM AND COPPER  
80°C 115°C 150°C

## SPECIFICATIONS

### INSULATION SYSTEM

All transformers in the range of manufacture utilize MGM's U.L. recognized 220°C insulation system. In all cases the temperature rise shall not exceed 150°C.

### CORES

High grade grain oriented electrical is used in all core construction with laminations stacked 1 x 1 and miter cut for cores above 75 KVA. Conservative flux densities and use of full steel width core clamps insure high efficiency, low loss operation with sound levels to NEMA standards and lower.

### ENCLOSURES

All MGM enclosures are fabricated using a one piece welded base design for vibration free strength and rigidity. Minimum panel thickness of Type 1 enclosures is No. 14 GA. steel, Type 2 & 3, No. 12 GA. steel. Natural draft cooling is achieved in Type 1 by full width protected openings at the top and rodent proof expanded metal at the bottom, with space at the bottom for lifting. Type 2 & 3 enclosures have welded channel bases fitted with lifting and jacking pads. Natural draft cooling is by expanded metal openings in full height removable panels. Wallmount brackets are available for units up to 75 KVA.

Weatherproof, NEMA 3R enclosures are available in all categories, accomplished in Type 1. By addition of top and bottom weathershields, in Types 2 & 3 by specially constructed A upon A louvered panels with a fine mesh screen backing.

Totally enclosed non-ventilated units are available to that adverse environments.

Finish is ASA. 61, applied over zinc after cleaning and degreasing. Available on request.

### COILS

All coil conductors are continuous with the terminations and tap connections brazed or welded. All coils are tightly precision wound using Nomex or film insulated magnet wire or full coil length sheet conductor. Voltage compensation taps are all rated for full capacity operation. Section wound designs are employed for small KVAs and disc wound designs on the larger units providing the best in voltage distribution and minimum voltage stress.

### CORE & COILS

MGM uses the highest quality of insulation components, barriers, terminal boards, stand-off insulators, etc. in its core & coil assemblies, which on completion are preheated double impregnated in high grade varnish and baked under programmed conditions to produce an extremely tough assembly mechanically and electrically. All core and coil assemblies are isolated from their enclosures with vibration damping pads.

### UPRATING METHODS

- 1) Forced air cooling is available for units above 300 KVA, and permits an increase in capacity of 33 1/3% continuously.
- 2) 80°C rise units are capable of providing an increase in nameplate KVA of 30% continuously without exceeding 150°C rise and life expectancy of 20/25 years.
- 3) 115°C rise units are capable of providing an increase in nameplate KVA of 15% without exceeding 150°C rise and life expectancy of 20/25 years.

### STANDARDS

All transformers are manufactured in accordance with the applicable NEMA, ANSI, IEEE, OSHA and UL standards and conform to the National Electrical Code requirements.

C02482



Westinghouse Electric Corporation  
Engineering and Instrumentation  
Services Division  
875 Greentree Road, Bldg. No. 8  
Pittsburgh, Pennsylvania 15220

Selling Policy  
49-000A

Page 1

February 1, 1986  
Supersedes SP 49-000A Pages 1-4 dated  
June 15, 1985  
Mailed to: E, D, C/49-000

Field Engineering Service

## PCB Service

The following terms and conditions shall apply to the servicing, processing or repairing of Polychlorinated Biphenyl ("PCB") contaminated electrical equipment, including the handling or disposing by Westinghouse of PCBs, PCB solid material and/or equipment or materials containing or contaminated with PCBs ("Waste Product"), more particularly described in the attached Westinghouse proposal \_\_\_\_\_ dated \_\_\_\_\_ ("Proposal").

The work to be performed by Westinghouse hereunder shall be collectively referred to as the "Project."

### General Terms and Conditions

#### 1. Price

Westinghouse shall perform the scope of work for the Project as set forth above, in accordance with the terms and conditions set forth herein, and the price Purchaser agrees to pay to Westinghouse for such work shall be that as stated in the Proposal.

#### 2. Quotations

The Proposal and any quotation therein shall expire thirty (30) days from the date of submission unless otherwise extended in writing by Westinghouse.

#### 3. Prices

Prices are net to all purchasers.

#### 4. Taxes

The price does not include any federal, state, or local property, license, privilege, sales, use, excise, gross receipts, value added or other like taxes which may now or hereafter be applicable to, measured by, or imposed upon, or with respect to the Project, any property or material required to perform the Project, its sale, its value, or its use, or any services performed in connection therewith. Such taxes are for the account of the Purchaser and the Purchaser agrees to pay or reimburse any such taxes which Westinghouse or its contractors or suppliers are required to pay.

#### 5. Terms of Payment

Payment is due upon receipt of invoice.

#### 6. Delayed Payments

If payments are not made in accordance with these terms, a service charge will, without prejudice to the right of Westinghouse to immediate payment, be added to the account of the Purchaser in an amount equal to the lower of 1½% per month or fraction thereof or the highest legal rate on

#### 7. Payments

Should the Purchaser be adjudged bankrupt or insolvent in any legal proceeding, Westinghouse shall have the right, at its election and throughout the period allowed in such proceeding for filing claims against the Purchaser's estate, to cancel the order and to recover its proper cancellation charges from the Purchaser's estate.

#### 8. Shipping and Completion Dates

Quoted shipping and completion dates are based on prompt receipt of all necessary information and approvals from the Purchaser and access as required by Westinghouse and its contractors or subcontractors (if any) to the site and to the equipment which is the subject of the Proposal. Unless Purchaser stipulates in writing that an earlier shipment or completion is not permissible, Westinghouse reserves the right to ship or complete prior to any dates set forth herein.

#### 9. Force Majeure

Westinghouse shall not be liable for failure to perform or for delay in performance due to fire, flood, strike or other labor difficulty, act of God, act of any governmental authority or of the Purchaser, riot, wrecks or delay in transportation, inability to obtain necessary materials from usual sources, lack of access to the site or to the equipment which is the subject of the Proposal, interruption of electrical service to Westinghouse-supplied equipment, loss of license, permit or approval required by any independent disposal facility to permit storage, treatment, processing or disposal of the Waste Product, or due to any cause beyond its reasonable control.

Except as may otherwise be set forth herein, in the event of delay in performance due to any such cause, the date of delivery or time for completion will be extended by a period of time reasonably necessary to

overcome the effect of such delay. Any additional cost or expense accruing or arising from such event of Force Majeure shall be solely for the account of the Purchaser.

#### 10. Warranty

Westinghouse warrants to the extent to which any of the same may be applicable that (a) any replacement or other parts furnished by it or any work done by it on the Purchaser's equipment or both shall be free of defects in workmanship and materials, (b) any specialized tools, equipment and instruments for the use of which a charge is made to the Purchaser shall be adequate for the work to be performed and (c) the engineering services performed by it will be competent and any recommendations of its representatives shall reflect their professional knowledge or judgment.

Westinghouse shall, correct any failure to conform to any of the applicable foregoing warranties of which it is notified in writing prior to one (1) year after completion of the Project, or shipment of the part, requiring correction under this warranty. Such correction may, in the case of item (a) above and at the election of Westinghouse shall be limited to the repair or replacement F.O.B. Westinghouse plant, of the defective part or parts furnished by it. In the case of any other breach of the foregoing warranty, Westinghouse shall furnish engineering services or specialized tools, equipment and instruments, to the same extent as on the original work. It is understood and agreed that, unless otherwise agreed to in writing by Westinghouse, Westinghouse assumes no responsibility with respect to the suitability of the Purchaser's equipment or with respect to any latent defects in the same. In no event shall Westinghouse be responsible for providing working access to the defect, including the removal, disassembly, replacement or reinstallation of any equipment, materials or structures to the extent necessary to permit Westinghouse to perform its warranty obligations, or transportation costs to and from the Westinghouse factory or repair facility. Westinghouse will not be responsible for damage to equipment components or parts resulting from improper maintenance or operation or from their deteriorated condition. The condition of any tests shall be mutually agreed upon and Westinghouse shall be notified of, and may be present at all tests that may be made.

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The above warranties do not apply to products which have a life under normal use, inherently shorter than the one-year period indicated above. Westinghouse, on products not manufactured by Westinghouse are warranted only to the extent the supplier agrees to extend its warranty to Purchaser.

Westinghouse warrants that any engineering studies performed by it will conform to professional standards. Any portion of the study which does not so conform shall be corrected by Westinghouse upon notification in writing by the Purchaser within six months after completion of the study.

New and/or replacement transformers shall be sold pursuant to Westinghouse Selling Policy 47-000, copy of which shall be provided to Purchaser by Westinghouse with the Proposal.

**THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OF TRADE), EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.**

#### 11. Liability

Westinghouse, its contractors and suppliers of any tier, shall not be liable in contract, for loss of profits or revenue, loss of use of equipment or power system, cost of capital, cost of purchased or replacement power or temporary equipment (including additional expenses incurred in using existing facilities), claims of customers of the Purchaser, or for any special, indirect, incidental, or consequential damages whether based in contract, in tort, including negligence or strict liability.

#### 12. Patent Infringement

Westinghouse shall, at its own expense, defend or at its option settle any claim, suit or proceeding brought against the Purchaser, and/or its vendees, mediate and immediate, so far as based on an allegation that any goods, material, equipment, device or article (hereinafter referred to as "Product") or any part thereof furnished hereunder constitutes a direct or a contributory infringement of any claim of any patent of the United States. This obligation shall be effective only if Purchaser shall have made all payments then due hereunder and if Westinghouse is notified promptly in writing and given authority, information and assistance for the defense of said claim, suit or proceeding. Westinghouse shall pay all damages and costs awarded in such suit or proceedings so defended. In case the products or any part thereof furnished here-

suit or proceeding for infringement of any United States patent, or in the event of an adjudication that such product or part infringes any United States patent, or if the use or sale of such product or part is enjoined, Westinghouse shall, at its option and its own expense, either:

- (a) procure for the Purchaser the right to continue using said product or part thereof; or
- (b) replace it with a non-infringing product; or
- (c) modify it so it becomes non-infringing; or
- (d) as a last resort, remove it and refund the purchase price and the transportation and installation costs thereof. The foregoing indemnity does not apply to the following:
  1. Patent processes performed by the product, or another product produced thereby.

2. Products supplied according to a design other than that of Westinghouse and which is required by the Purchaser.

3. Combination of the product with another product not furnished hereunder unless Westinghouse is a contributory infringer.

4. Any settlements of a suit or proceeding made without Westinghouse's written consent.

The foregoing states the entire liability of Westinghouse with respect to patent infringement by said product or any part thereof.

If a suit or proceeding is brought against Westinghouse solely on account of activities enumerated in paragraph 1, 2 or 3 above, the Purchaser agrees to indemnify Westinghouse in the manner and to the extent Westinghouse indemnified Purchaser, in the first paragraph of this provision insofar as the terms thereof are appropriate.

#### 13. Termination

Any order or contract may be terminated by the Purchaser only after written notice to Westinghouse and payment of reasonable and proper termination charges.

#### 14. Purchaser's Cooperation

Purchaser further agrees to cooperate fully with Westinghouse in performance of the Project and to assist Westinghouse in its compliance with all applicable laws, rules and regulations. Purchaser acknowledges that its strict compliance with such laws, rules and regulations is essential.

If the scope of work hereunder does not include disposing by Westinghouse of any Waste Product above, then Purchaser shall retain sole responsibility and liability for storing, handling, processing and disposing of any and all Waste Product at the site prior to commencement of the work here-

#### 15. Additional Work

Any additional work performed by Westinghouse for Purchaser, beyond the scope of the Proposal, shall be performed in accordance with these General Terms and Conditions to the extent applicable, and Purchaser shall pay Westinghouse for same at Westinghouse's then current rates for such services, or as may be otherwise negotiated by the parties.

#### 16. Inspection and Right of Rejection

Westinghouse may reject Waste Product it has reasonably determined to be in non-compliance with any applicable statute, ordinances, orders, rules or regulations. Westinghouse shall give Purchaser notice of the rejection and reasons for such rejection. Purchaser shall make reasonable efforts to bring the Waste Product into compliance within a reasonable period of time. If Purchaser fails to bring the Waste Product into compliance, Purchaser will be deemed to have title to the Waste Product and Westinghouse shall be relieved of any further responsibility to Purchaser with respect to same.

#### 17. Purchaser Warranties

The Purchaser warrants and represents to Westinghouse that:

- (a) Purchaser will comply with and fulfill its obligations as set forth herein; and,
- (b) Purchaser has sole title, or the full right to transfer title, to Waste Product which is tendered.

#### 18. Governmental Prohibition

In the event any federal, state or local governmental regulation or act prohibits Westinghouse from completing the Project or servicing and/or repairing, pursuant to the warranty contained herein, Purchaser's PCB or PCB-contaminated electrical equipment, Westinghouse's sole obligation, and Purchaser's exclusive remedy, shall be limited to the refund of the portion of the Price reasonably allocated to the uncompleted portion of the Project.

#### 19. Purchaser's Notification

Purchaser acknowledges the importance of responding promptly to any PCB related problem or condition at the site. Accordingly, Purchaser hereby agrees to notify Westinghouse within forty-eight (48) hours after discovery, or the time when such reasonably should be discovered, of any PCB-related problem or condition created solely by Westinghouse at Purchaser's site.

#### 20. Title and Risk of Loss

Westinghouse shall receive and accept title and risk of loss to the Waste Product (in the event disposal of same is part of the Project) upon placement of the contaminated electrical equipment on the vehicles of Westinghouse or its subcontractors.

C02484



**21. Indemnification**

Westinghouse shall indemnify and save Purchaser (including its employees) harmless from and against any expense, loss or liability caused by or resulting from the failure of Westinghouse (or its Subcontractors) to fully comply with applicable federal, state, or local laws, statutes, regulation or governmental directives which regulate the handling, transportation, storage or disposal of the Waste Product hereunder and from any and all claims, suits and liability for loss of or damage to any tangible property or persons (including death) caused by any negligent or willful act of Westinghouse or its Subcontractors during the handling, collection, transportation or storage of the Waste Product hereunder. Westinghouse and Purchaser shall, in the event of liability arising out of their joint negligence or willful acts, be liable to the other and any damaged third party in proportion to their relative degree of fault.

# IMPORTANT MESSAGE

TO AG  
DATE 2/24 TIME 2:00 ~~AM~~ P.M.

WHILE YOU WERE OUT  
M Brad Miller  
OF F-G  
Area Code  
& Exchange 314/569-3122

TELEPHONED	PLEASE CALL
CALLED TO SEE YOU	WILL CALL AGAIN
WANTS TO SEE YOU	URGENT
RETURNED YOUR CALL	

Message 2500 KVA transformer  
Jefferson-dry type  
Power Madison A 34,425  
Operator GE Dry Type

SICM





THE MARMON GROUP

**AUTHORITY FOR EXPENDITURE (AFE)**

AFE Number: 88-9

Cerro Copper Company

Date: 2/17/88

**Purpose of Expenditure:**

- ☐ Addition
- ☐ Repair
- ☒ Replacement
- ☐ Expansion
- ☐ Cost Reduction
- ☐ New Product Line
- ☐ Abandonment/Retirement
- ☐ Other (identify) \_\_\_\_\_

**Total Investment:**

Capital \$ 60,000  
Expense \_\_\_\_\_  
Total \$ 60,000

**Annual Earnings or Savings**

\$ \_\_\_\_\_

Cash Payback \_\_\_\_\_ years

**Check Basis:**

☐ Before Tax ☐ After Tax

Requested By: Engineering

Department: Tube Mill

Expected Starting Date: 3-1-88

Expected Completion Date: 7-31-88

AFE Budget B-8 -  
Schedule 15

Shop Order Number: \_\_\_\_\_

Description: \* Tube Mill Transformer Replacement

It is proposed to replace three 833 KVA single-phase transformers located outside the Extrusion Bay with one 2500 KVA three-phase transformer.

**Reason for Expenditure: \***

The three single-phase transformers are 45 years old. These units service much of the ancillary equipment for No. 3 Extrusion Press, as well as the draw benches and the finishing equipment in the Brass Mill area.

Transformer oil tests revealed that the winding insulation on one of these units is deteriorating to the dangerous level and that the oil is PCB contaminated.

The proposed replacement single 2500 KVA three-phase transformer will be the latest state-of-the-art design and will be filled with non PCB mineral oil.

**Alternatives Considered: \***

Replacement of these transformers with three new single-phase units would be more costly without offering any additional operating advantages.

**APPROVALS**

Date

2/17/88

Robert E. Conner

2/18/88

[Signature]

3/1/88

3-8-88

Henry Schwen

RCP

002487

**INVESTMENT, EARNINGS & CASH PAYBACK PERIOD**  
**(IN SUPPORT OF SUMMARY FIGURES ON FRONT OF FORM)**

**Itemized Listing of Costs of Acquisition and Installation:**

INVESTMENT	
CAPITAL	EXPENSE
\$	\$
Equipment Purchase, including disposal of existing transformers, installation of replacement transformers, delivery and taxes.	
50,000	
Contingency	
10,000	
\$ 60,000	\$

**Calculation of Estimated Annual Earnings or Savings:**

Not Applicable

**Calculation of Cash Payback Period**

Not Applicable

C02488

SMALL POWER TRANSFORMER DIVISION  
SOUTH BOSTON, VIRGINIA  
CERTIFIED TRANSFORMER TEST REPORT

GENERAL ORDER: STEW46802

SHOP ORDER: SAT4999

CUSTOMER: CERO COPPER

PURCHASER'S ORDER NUMBER: 79106

3-PHASE 60 HERTZ COOLANT- OIL

SUB/PHASE POLARITY

WINDING HIGH VOLTAGE

2500 KVA  
13800 VOLTS DELTA  
TAPS: 14400 14100 13800 13500 13200

WINDING LOW VOLTAGE

2500 KVA  
480 VOLTS WYE

RESISTANCES, LOSSES, IMPEDANCE, AND REGULATION CORRECTED TO 085 DEGREE C.  
RESISTANCES, EXCITING CURRENT, LOSSES AND IMPEDANCES ARE BASED ON NORMAL  
RATING, UNLESS OTHERWISE STATED. LOSSES AND REGULATION ARE BASED ON WATTMETER  
MEASUREMENTS. FOR THREE-PHASE TRANSFORMERS, THE RESISTANCES ARE THE SUM OF  
THE THREE PHASES IN SERIES.

: RESISTANCES IN :		AT 100% RATED		: 13800 TO 480 :	
: OHMS :		VOLTAGE		: 2500 KVA :	
: SERIAL :	TEST :	W I N D I N G :	%EXCITING :	NO LOAD :	LOAD LOSS :
: NUMBER :	DATE :	H.V. :	L.V. :	CURRENT :	LOSS WATT: WATTS :
SAT49990101	052488	2.5960	.00114	0.3691	3540 23497 5.64 :
AVERAGE :		.3691 :		3540 : 27037 5.64 :	
GUARANTEE :		1.5600 :		4900 : 27700 5.75 :	

REGULATION

POWER FACTOR 100% 80%  
AVERAGE 1.131 4.190

TEMPERATURE RISE CALCULATED FROM BASIC DESIGN DATA WHICH HAS BEEN VERIFIED BY  
TEST RESULTS OF SIMILAR TRANSFORMERS.

WINDING RISE  
BY RESISTANCE

LOAD	H.V.	L.V.	GUAR	TOP FLUID RISE	AMBIENT TEMP
100%	62.3	64.9	65	60.2	

INSULATIONS TEST

APPLIED POTENTIAL TEST (VOLTAGE IS APPLIED BETWEEN EACH WINDING AND ALL OTHER  
WINDINGS CONNECTED TO CORE AND GROUND)

: RATED :		TEST VOLTAGE :		DURATION OF :	
WINDING :	VOLTS :	APPLIED :	TEST :		
H.V. :	13800 :	34 KV :	60 SECONDS :		
L.V. :	480 :	10 KV :	60 SECONDS :		

INDUCED POTENTIAL TEST: TWO TIMES RATED VOLTAGE ACROSS THE FULL WINDING AT  
180 HERTZ FOR 7200 CYCLES.

I HEREBY CERTIFY THAT THIS IS A TRUE REPORT BASED ON FACTORY TESTS MADE IN  
ACCORDANCE WITH THE LATEST TRANSFORMER TEST CODE C57 OF THE AMERICAN STANDARD  
ASSOCIATION; AND THAT EACH TRANSFORMER WITHSTOOD THE ABOVE INSULATION TESTS.

DATE 05/26/88 APPROVED BY

*Lloyd Allen*

STEWART & SULLIVAN ELECTRIC CORPORATION  
SMALL POWER TRANSFORMER DIVISION  
SOUTH BOSTON, VIRGINIA  
CERTIFIED TRANSFORMER TEST REPORT

GENERAL ORDER: STEW46802

SHOP ORDER: SAT4999

CUSTOMER: CERO COPPER

PURCHASER'S ORDER NUMBER: 79106

3-PHASE

60 HERTZ

COOLANT: OIL

SUB/PHASE POLARITY

WINDING HIGH VOLTAGE

2500 KVA

13800 VOLTS DELTA

TAPS: 14400 14100 13800 13500 13200

WINDING LOW VOLTAGE

2500 KVA

480 VOLTS WYE

RESISTANCES, LOSSES, IMPEDANCE, AND REGULATION CORRECTED TO 085 DEGREE C.  
RESISTANCES, EXCITING CURRENT, LOSSES AND IMPEDANCES ARE BASED ON NORMAL  
RATING, UNLESS OTHERWISE STATED. LOSSES AND REGULATION ARE BASED ON WATTMETER  
MEASUREMENTS. FOR THREE-PHASE TRANSFORMERS, THE RESISTANCES ARE THE SUM OF  
THE THREE PHASES IN SERIES.

		: RESISTANCES IN :		AT 100% RATED		: 13800 TO		480 :	
		: OHMS :		VOLTAGE		: 2500 KVA		:	
: SERIAL :	TEST :	W I N D I N G :	%EXCITING :	NO LOAD :	LOAD LOSS :				
: NUMBER :	DATE :	H.V. :	L.V. :	CURRENT :	LOSS WATT:	WATTS :	%IMP :		
SAT49990101	052488	2.5960	.00114	0.3691	3540	23497	5.64		
		:		:		: TOTAL LOSS		:	
		AVERAGE :		.3691 :		3540 :		27037 5.64 :	
		GUARANTEE :		1.5600 :		4900 :		27700 5.75 :	

REGULATION

POWER FACTOR 100%

AVERAGE

1.131

80%

4.190

TEMPERATURE RISE CALCULATED FROM BASIC DESIGN DATA WHICH HAS BEEN VERIFIED BY  
TEST RESULTS OF SIMILAR TRANSFORMERS.

WINDING RISE  
BY RESISTANCE

LOAD	H.V.	L.V.	GUAR	TOP FLUID RISE	AMBIENT TEMP
100%	62.3	64.9	65	60.2	

INSULATIONS TEST

APPLIED POTENTIAL TEST (VOLTAGE IS APPLIED BETWEEN EACH WINDING AND ALL OTHER  
WINDINGS CONNECTED TO CORE AND GROUND)

		: RATED :		TEST VOLTAGE :		DURATION OF :	
WINDING :	VOLTS :	APPLIED :		TEST :			
H.V. :	13800 :	34 KV :		60 SECONDS :			
L.V. :	480 :	10 KV :		60 SECONDS :			

INDUCED POTENTIAL TEST: TWO TIMES RATED VOLTAGE ACROSS THE FULL WINDING AT  
180 HERTZ FOR 7200 CYCLES.

I HEREBY CERTIFY THAT THIS IS A TRUE REPORT BASED ON FACTORY TESTS MADE IN  
ACCORDANCE WITH THE LATEST TRANSFORMER TEST CODE C57 OF THE AMERICAN STANDARDS  
ASSOCIATION; AND THAT EACH TRANSFORMER WITHSTOOD THE ABOVE INSULATION TESTS.

DATE 05/26/88 APPROVED BY

*Lloyd Allen*

WESTINGHOUSE ELECTRIC CORPORATION  
SMALL POWER TRANSFORMER DIVISION  
SOUTH BOSTON, VIRGINIA  
CERTIFIED TRANSFORMER TEST REPORT

GENERAL ORDER: STEW46802

SHOP ORDER: SAT4999

CUSTOMER: CERO COPPER

PURCHASER'S ORDER NUMBER: 79106

3-PHASE

60 HERTZ

COOLANT: OIL

SUB/PHASE POLARITY

WINDING HIGH VOLTAGE

2500 KVA

13800 VOLTS DELTA

TAPS: 14400 14100 13800 13500 13200

WINDING LOW VOLTAGE

2500 KVA

480 VOLTS WYE

RESISTANCES, LOSSES, IMPEDANCE, AND REGULATION CORRECTED TO 085 DEGREE C.  
RESISTANCES, EXCITING CURRENT, LOSSES AND IMPEDANCES ARE BASED ON NORMAL  
RATING, UNLESS OTHERWISE STATED. LOSSES AND REGULATION ARE BASED ON WATTMETER  
MEASUREMENTS. FOR THREE-PHASE TRANSFORMERS, THE RESISTANCES ARE THE SUM OF  
THE THREE PHASES IN SERIES.

		: RESISTANCES IN :		AT 100% RATED		: 13800 TO		480 :	
		: OHMS :		VOLTAGE		: 2500 KVA		:	
: SERIAL :	TEST :	W I N D I N G :	%EXCITING :	NO LOAD :	LOAD LOSS :				
: NUMBER :	DATE :	H.V. :	L.V. :	CURRENT :	LOSS WATT:	WATTS :	%IMP :		
SAT49990101	052488	2.5960	.00114	0.3691	3540	23497	5.64		
		:		:		: TOTAL LOSS		:	
		AVERAGE :		.3691 :		3540 :		27037 5.64 :	
		GUARANTEE :		1.5600 :		4900 :		27700 5.75 :	

REGULATION

POWER FACTOR 100%

AVERAGE 1.131

80%

4.190

TEMPERATURE RISE CALCULATED FROM BASIC DESIGN DATA WHICH HAS BEEN VERIFIED BY  
TEST RESULTS OF SIMILAR TRANSFORMERS.

WINDING RISE  
BY RESISTANCE

LOAD	H.V.	L.V.	GUAR	TOP FLUID RISE	AMBIENT TEMP
100%	62.3	64.9	65	60.2	

INSULATIONS TEST

APPLIED POTENTIAL TEST (VOLTAGE IS APPLIED BETWEEN EACH WINDING AND ALL OTHER  
WINDINGS CONNECTED TO CORE AND GROUND)

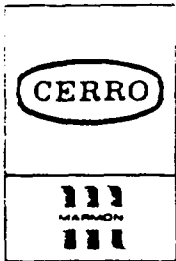
: RATED :		TEST VOLTAGE :		DURATION OF :	
WINDING :	VOLTS :	APPLIED :	TEST :		
H.V. :	13800 :	34 KV :	60 SECONDS :		
L.V. :	480 :	10 KV :	60 SECONDS :		

INDUCED POTENTIAL TEST: TWO TIMES RATED VOLTAGE ACROSS THE FULL WINDING AT  
180 HERTZ FOR 7200 CYCLES.

I HEREBY CERTIFY THAT THIS IS A TRUE REPORT BASED ON FACTORY TESTS MADE IN  
ACCORDANCE WITH THE LATEST TRANSFORMER TEST CODE C57 OF THE AMERICAN STANDARDS  
ASSOCIATION; AND THAT EACH TRANSFORMER WITHSTOOD THE ABOVE INSULATION TESTS.

DATE 05/26/88 APPROVED BY

*Lloyd Allen*



CERRO COPPER PRODUCTS CO.

A member of The Marmon Group of companies

P.O. Box 681

East St. Louis, Illinois 62202

618/337-6000

June 15, 1988

Westinghouse Electric Co.  
2060 Craigshire Rd.  
St. Louis, Missouri 63146

Attn: Bert Penrose

Ref: Transformer Replacement

Gentlemen:

We are planning to have the power off July 9th, 8:00 a.m.,  
weather permitting, and back on the evening of July 10.

The three one-phase transformers are for your disposal. It  
is our desire not to keep these transformers.

Please find enclosed the latest oil test results performed on  
these transformers.

If you have any questions, please call.

Sincerely,

CERRO COPPER PRODUCTS CO.  
A member of The Marmon Group of companies

*Loren Gregory*  
Loren Gregory

LG/jl

enc.

cc: David Azbill

C02492

TRANSFORMER CONSULTANTS  
A DIVISION OF S.D. MYERS INC.

P.O. BOX 4724, AKRON, OH 44310

0027

CUST CERRO COPPER PRODUCTS  
SUB NAME EXTENSION BAY

CITY E ST LOUIS IL  
UNIT # 1034

OTHER

ID # 07320000

DATE PRINTED 5/23/88

LOCATION OUTDOOR/GROUND

NAMEPLATE DATA

MFG. GE  
DATE MFG  
S/N 3762778  
KVA 833  
PRI 13,800  
SEC 460  
EQUIP. TYPE TRANSFORMER  
TRANS CLASS  
IMPEDANCE 4.99%  
PHASE/CYCLE 3/60  
LIQUID TYPE OIL  
GAL LIQUID 600

ADDITIONAL EQUIPMENT

RADIATORS YES  
FANS NO  
H<sub>2</sub>O COOLED NO  
OIL PUMPS NO  
TOP FPV 1.00 IN  
BOTTOM FPV 1.00 IN  
OTHER ACCESS  
CONSERVATORS NO  
LTC COMP NO  
BUSHING LOC TOP  
HOSE LENGTH  
DE-ENERGIZED  
POWER V/A 400/30

VISUAL INSPECTION

PAINT CONDITION BAD  
LEAKS YES/BOTTOM TANK WELD

FIELD SERVICE

10/75 RE-REFINE  
7/83 RE-REFINE

PCB CONTENT / EXPRESSED IN PPM

DATE OF SERVICE 12/21/79  
1242 AROCLOR  
1254 AROCLOR  
1280 AROCLOR  
OTHER  
TOTAL CONTENT 5  
COLOR LABEL GREEN  
CLASS NON-PCB

LIQUID SCREEN TEST DATA

DATE	SERVICE	LEVEL	TEMP	P/V	ACID	IFT	DIEL	COLOR	SP. GR.	VISUAL	SEDIMENT
9/00/80					.040 AC	35.0 AC	41 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
9/00/81					.040 AC	33.1 AC	50 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
6/00/82					.060 QU	35.8 AC	47 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
4/27/83		LOW	36 C		.060 QU	31.9 QU	43 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
7/14/83		NORMAL			.030 AC	44.8 AC	45 AC	2.00 AC	0.890 AC	CLEAR AC	NONE AC
5/14/84		LOW	20 C		.040 AC	38.8 AC	44 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
7/16/85		NORMAL	40 C		.040 AC	36.0 AC	44 AC	2.00 AC	0.890 AC	CLEAR AC	NONE AC
7/07/86		NORMAL	43 C		.040 AC	36.1 AC	35 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/27/87		NORMAL	35 C		.040 AC	34.1 AC	40 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/04/88		NORMAL	25 C		.040 AC	32.7 AC	42 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC

COMMENTS TRANSFORMER OIL TEST DATA ACCEPTABLE, HOWEVER STUDIES INDICATE OXIDATION BY-PRODUCTS TRAPPED IN INSULATION.

GAS-IN-OIL ANALYSIS / GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	SERVICE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUSTIBLE	TOTAL GAS
12/20/79		ND	25076	56113	1	11	512	ND	1	ND	13	81714
10/05/80		ND	27063	65468	ND	4	537	ND	5	ND	9	93077
9/09/81		ND	25531	53778	ND	3	438	ND	ND	ND	3	79750
6/07/82		ND	23459	60810	ND	4	457	ND	ND	ND	4	84730
5/02/83		ND	25771	60815	ND	12	484	ND	TRACE	ND	12	87082
5/14/84		ND	26543	58293	ND	ND	414	ND	ND	ND	ND	85250
7/24/85		ND	27450	61572	1	15	532	TRACE	TRACE	ND	16	89570
7/07/86		ND	24135	50623	TRACE	TRACE	505	TRACE	TRACE	ND	TRACE	75263
5/27/87		ND	26984	57452	ND	9	411	ND	1	ND	10	84857
5/04/88		TRACE	28904	64238	TRACE	7	351	ND	1	ND	8	93501

RECOMMENDATION \* COMMENTS

RETEST 1 YEAR \* B-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME.

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CUST CERRO COPPER PRODUCTS

CITY E ST LOUIS IL

ID # 07320000

DATE PRINTED 5/23/88

SUB NAME EXTRUSION BAY

UNIT # 1033

OTHER BOLT TOP

LOCATION OUTDOOR/GROUND

NAMEPLATE DATA

MFG GE  
DATE MFG  
S/N 3762779  
KVA 833  
PRI 13,800  
SEC 460  
EQUIP TYPE TRANSFORMER  
TRANS CLASS OA  
IMPEDANCE 4.99%  
PHASE/CYCLE 3/60  
LIQUID TYPE OIL  
GAL LIQUID 600

ADDITIONAL EQUIPMENT

RADIATORS YES  
FANS NO  
H<sub>2</sub>O COOLED NO  
OIL PUMPS NO  
TOP FPV 1.00 IN  
BOTTOM FPV 1.00 IN  
OTHER ACCESS  
CONSERVATORS NO  
LTC COMP NO  
BUSHING LOC TOP  
HOSE LENGTH 50 FEET  
DE-ENERGIZED  
POWER V/A 400/30

VISUAL INSPECTION

PAINT CONDITION BAD LEAKS YES/BOTTOM WELD

FIELD SERVICE

10/75 RE-REFINE

PCB CONTENT / EXPRESSED IN PPM

DATE OF SERVICE	1242 AROCLOR	1254 AROCLOR	1260 AROCLOR	OTHER	TOTAL PCB CONTENT
12/21/79					
9/08/87	9		38		47

COLOR LABEL ORANGE CLASS PCB CONTAMINATED

LIQUID SCREEN TEST DATA

DATE	SERVICE	LEVEL	TEMP	P/V	ACID	IFT	DIEL	COLOR	SP. GR.	VISUAL	SEDIMENT
9/00/80					.030 AC	34.4 AC	43 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
9/00/81					.050 AC	36.4 AC	50 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
6/00/82					.050 AC	37.5 AC	50 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
4/27/83		LOW	40 C		.030 AC	35.6 AC	43 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/14/84		LOW	20 C		.040 AC	34.1 AC	40 AC	1.50 AC	0.880 AC	CLEAR AC	NONE AC
7/16/85		LOW	40 C		.050 AC	32.0 AC	40 AC	2.50 AC	0.880 AC	CLEAR AC	NONE AC
7/07/86		NORMAL	47 C		.040 AC	32.1 AC	33 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC
5/27/87		NORMAL	42 C		.040 AC	30.0 QU	F/WT	1.50 AC	0.880 AC	F/WT UN	NONE AC
9/08/87					.040 AC	31.0 QU	26 QU	2.00 AC	0.870 AC	CLEAR AC	NONE AC
5/04/88		LOW	30 C		.040 AC	31.2 QU	41 AC	2.00 AC	0.880 AC	CLEAR AC	NONE AC

COMMENTS ACID AND/OR IFT TEST INDICATES THE PRESENCE OF OXIDATION BY-PRODUCTS.

GAS-IN-OIL ANALYSIS / GAS CHROMATOGRAPHY EXPRESSED IN PPM

DATE	SERVICE	HYDROGEN	OXYGEN	NITROGEN	METHANE	CARBON MONOXIDE	CARBON DIOXIDE	ETHANE	ETHYLENE	ACETYLENE	TOTAL COMBUSTIBLE	TOTAL GAS
12/20/79		ND	26303	62782	ND	6	480	ND	ND	ND	6	89571
10/06/80		ND	26964	61438	ND	2	442	ND	ND	ND	2	88846
9/09/81		ND	28370	62023	ND	ND	356	ND	ND	ND	ND	90749
6/07/82		ND	24393	61171	ND	5	456	ND	ND	ND	5	86025
5/02/83		ND	27502	65735	ND	2	410	ND	ND	ND	2	93649
5/14/84		ND	25331	55368	ND	ND	426	ND	ND	ND	ND	81125
7/24/85		ND	22993	54457	TRACE	55	1027	TRACE	39	ND	94	78571
7/07/86		ND	21984	48989	TRACE	TRACE	527	ND	TRACE	ND	TRACE	71500
5/27/87		ND	23859	61059	ND	17	1494	ND	TRACE	ND	17	86429
5/04/88		ND	34080	69841	TRACE	2	578	ND	TRACE	ND	2	104501

RECOMMENDATION : COMMENTS

RETEST 1 YEAR : 8-THE ANALYSIS OF THIS SAMPLE SHOWS NO SIGNIFICANT INCREASE IN THE COMBUSTIBLE GAS VOLUME.

C02494



5C 0029

LOCATION OUTDOOR / GROUND

RADIATORS	YES	CONSERVATORS	NO
FANS	NO	LTC COMP	NO
H <sub>2</sub> O COOLED	NO	BUSHING LOC	TOP
OIL PUMPS	NO	HOSE LENGTH	100 FEET
TOP FPV	1.00 IN	DE-ENERGIZED	
BOTTOM FPV	1.00 IN	POWER V/A	400/30
OTHER ACCESS			

DATE OF SERVICE	1242 AROCLOR	1254 AROCLOR	1250 AROCLOR	OTHER	TOTAL CONTENT
12/21/79			TRACE		TRACE
10/17/84			19		19
	COLOR LABEL	GREEN	GLASS	NON-PCB	

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